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2003-2004/24
National Defense Authorization

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2005—H.R. 4200

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES
ONE HUNDRED EIGHTH CONGRESS

SECOND SESSION

TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE HEARINGS

ON

TITLE I—PROCUREMENT
TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
TITLE III—OPERATION AND MAINTENANCE

HEARINGS HELD
MARCH 4, 11, 25, 31, AND APRIL 1, 2004

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[There were no Questions submitted.]

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108TH CONGRESS
2D SESSION

H. R. 4200

To authorize appropriations for fiscal year 2005 for military activities of the Department of Defense, to prescribe military personnel strengths for fiscal year 2005, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 22, 2004

MR. HUNTER (for himself and Mr. SKELTON) (both by request) introduced the following bill; which was referred to the Committee on Armed Services

A BILL

To authorize appropriations for fiscal year 2005 for military activities of the Department of Defense, to prescribe military personnel strengths for fiscal year 2005, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Defense Authorization Act for Fiscal Year 2005".

* * * * * * *

TITLE I—PROCUREMENT

Subtitle A—Authorization of Appropriations

SEC. 101. ARMY.

Funds are hereby authorized to be appropriated for fiscal year 2005 for procurement for the Army as follows:

(1) For aircraft, $2,658,241,000.
(2) For missiles, $1,398,321,000.
(3) For weapons and tracked combat vehicles, $1,639,695,000.
(4) For ammunition, $1,556,902,000.
(5) For other procurement, $4,240,896,000.

SEC. 102. NAVY AND MARINE CORPS.

(a) NAVY.—Funds are hereby authorized to be appropriated for fiscal year 2005 for procurement for the Navy as follows:

(1) For aircraft, $8,767,867,000.
(2) For weapons, including missiles and torpedoes, $2,101,529,000.
(3) For shipbuilding and conversion, $9,962,027,000.
(4) For other procurement, $4,834,278,000.

(b) MARINE CORPS.—Funds are hereby authorized to be appropriated for fiscal year 2005 for procurement for the Marine Corps in the amount of $1,190,103,000.

(c) NAVY AND MARINE CORPS AMMUNITION.—Funds are hereby authorized to be appropriated for fiscal year 2005 for procurement of ammunition for the Navy and Marine Corps in the amount of $858,640,000.

SEC. 103. AIR FORCE.

Funds are hereby authorized to be appropriated for fiscal year 2005 for procurement for the Air Force as follows:

(1) For aircraft, $13,163,174,000.
(2) For missiles, $4,718,313,000.
(3) For procurement of ammunition, $1,396,457,000.
(4) For other procurement, $13,283,557,000.

SEC. 104. DEFENSE-WIDE ACTIVITIES.

Funds are hereby authorized to be appropriated for fiscal year 2005 for Defense-wide procurement in the amount of $2,883,302,000.

Subtitle B—Multiyear Procurement Authorization

SEC. 111. MULTIYEAR PROCUREMENT AUTHORITY FOR THE LIGHT WEIGHT 155 MILLIMETER HOWITZER PROGRAM.

The Secretary of the Navy may, in accordance with section 2306b of title 10, United States Code, enter into a multiyear contract, beginning with the fiscal year 2005 program year, for procurement of the light weight 155 millimeter howitzer.

TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

Subtitle A—Authorization of Appropriations

SEC. 201. AUTHORIZATION OF APPROPRIATIONS.

Funds are hereby authorized to be appropriated for fiscal year 2005 for the use of the Department of Defense for research, development, test, and evaluation, as follows:

(1) For the Army, $9,266,258,000.
(2) For the Navy, $16,346,391,000.
(3) For the Air Force, $21,114,667,000.
(4) For Defense-wide activities, $21,044,972,000, of which $305,135,000 is authorized for the Director of Operational Test and Evaluation.

Subtitle B—Ballistic Missile Defense

SEC. 211. FUNDING FOR MISSILE DEFENSE AGENCY.

(a) Funds appropriated under the heading "Research, Development, Test and Evaluation, Defense-Wide" for the Missile Defense Agency may, upon approval by the Secretary of Defense, be used for the development and fielding of ballistic missile defense capabilities.

(b) This section shall be effective for fiscal years after Fiscal Year 2004.

TITLE III—OPERATION AND MAINTENANCE

Subtitle A—Authorization of Appropriations

SEC. 301. OPERATION AND MAINTENANCE FUNDING.

Funds are hereby authorized to be appropriated for fiscal year 2005 for the use of the Armed Forces and other activities and agencies of the Department of Defense for expenses, not otherwise provided for, for operation and maintenance, in amounts as follows:

(1) For the Army, $26,133,411,000.
(2) For the Navy, $29,789,190,000.
(3) For the Marine Corps, $3,632,115,000.

(4) For the Air Force, $28,471,260,000.
(5) For the Defense-wide activities, $17,494,076,000.
(6) For the Army Reserve, $2,008,128,000.
(7) For the Naval Reserve, $1,240,038,000.
(8) For the Marine Corps Reserve, $188,696,000.
(9) For the Air Force Reserve, $2,239,790,000.
(10) For the Army National Guard, $4,440,686,000.
(11) For the Air National Guard, $4,422,838,000.
(12) For the United States Court of Appeals for the Armed Forces, $10,825,000.
(13) For Environmental Restoration, Army, $400,948,000.
(14) For Environmental Restoration, Navy, $266,820,000.
(15) For Environmental Restoration, Air Force, $397,368,000.
(16) For Environmental Restoration, Defense-wide, $23,684,000.
(17) For Environmental Restoration, Formerly Used Defense Sites, $216,516,000.
(18) For Overseas Humanitarian, Disaster, and Civic Aid programs, $59,000,000.
(19) For Cooperative Threat Reduction programs, $409,200,000.
(20) For Overseas Contingency Operations Transfer Fund, $30,000,000.

SEC. 302. WORKING CAPITAL FUNDS.

Funds are hereby authorized to be appropriated for fiscal year 2005 for the use of the Armed Forces and other activities and agencies of the Department of Defense for providing capital for working capital and revolving funds in amounts as follows:
(1) For the Defense Working Capital Funds, $1,685,886,000.
(2) For the National Defense Sealift Fund, $1,269,252,000.

SEC. 303. ARMED FORCES RETIREMENT HOME.

There is hereby authorized to be appropriated for fiscal year 2005 from the Armed Forces Retirement Home Trust Fund the sum of $61,195,000 for the operation of the Armed Forces Retirement Home.

SEC. 304. OTHER DEPARTMENT OF DEFENSE PROGRAMS.

(a) DEFENSE HEALTH PROGRAM.—Funds are hereby authorized to be appropriated for the Department of Defense for fiscal year 2005 for expenses, not otherwise provided for, for the Defense Health Program, $17,640,411,000, of which—
(1) $17,203,369,000 is for Operation and Maintenance;
(2) $72,407,000 is for Research, Development, Test, and Evaluation; and
(3) $364,635,000 is for Procurement.

(b) CHEMICAL AGENTS AND MUNITIONS DESTRUCTION.—(1) Funds are hereby authorized to be appropriated for the Department of Defense for fiscal year 2005 for expenses, not otherwise provided for, for Chemical Agents and Munitions Destruction, $1,371,990,000, of which—
(A) $1,138,801,000 is for Operation and Maintenance;
(B) $154,209,000 is for Research, Development, Test, and Evaluation; and
(C) $78,980,000 is for Procurement.

(2) Amounts authorized to be appropriated under paragraph (1) are authorized for—
(A) the destruction of lethal chemical agents and munitions in accordance with section 1412 of the Department of Defense Authorization Act, 1986 (50 U.S.C. 1521); and
(B) the destruction of chemical warfare materiel of the United States that is not covered by section 1412 of such Act.

(c) DRUG INTERDICTION AND COUNTER-DRUG ACTIVITIES, DEFENSE-WIDE.—Funds are hereby authorized to be appropriated for the Department of Defense for fiscal year 2005 for expenses, not otherwise provided for, for Drug Interdiction and Counter-Drug Activities, Defense-wide, $852,697,000.

(d) DEFENSE INSPECTOR GENERAL.—Funds are hereby authorized to be appropriated for the Department of Defense for fiscal year 2005 for expenses, not otherwise provided for, for the Office of the Inspector General of the Department of Defense, $244,562,000, of which—
(1) $242,362,000 is for Operation and Maintenance;
(2) $100,000 is for Research, Development, Test, and Evaluation; and
(3) $2,100,000 is for Procurement.

Subtitle B—Environmental Provisions

SEC. 311. PAYMENT OF PRIVATE CLEANUP COSTS.

(a) AUTHORITY TO PAY FOR SERVICES.—Section 2701(d) of title 10, United States Code, is amended—

(1) in paragraph (1), by striking "tribe," both places it appears and inserting "tribe, owner of covenant property,"; and

(2) in paragraph (4), by adding at the end the following new subparagraph:

"(C) The term 'owner of covenant property' means an owner of property subject to a covenant provided by the United States in accordance with the requirements of section 120(h)(3)(A)(ii)(II) of CERCLA: *Provided, however,* That the covenant property also is the site of the services to be performed.".

(b) SOURCE OF FUNDS FOR COVENANT PROPERTY.—Section 2703 of such title is amended—

(1) in subsection (g)(1), by striking "The" and inserting "Except as provided in subsection (h), the"; and

(2) by adding at the end the following new subsection:

"(h) SOLE SOURCE OF FUNDS FOR ENVIRONMENTAL REMEDIATION SERVICES AT BASE REALIGNMENT AND CLOSURE SITES.—In the case of property disposed of in accordance with a base closure law, the sole source of funds for services obtained under section 2701(d)(1) of this title shall be the applicable base closure account established under such base closure law.".

SEC. 312. REIMBURSEMENT TO THE ENVIRONMENTAL PROTECTION AGENCY FOR CERTAIN COSTS IN CONNECTION WITH THE MOSES LAKE, WASHINGTON SUPERFUND SITE.

(a) AUTHORITY.—Using funds described in subsection (b), the Secretary of Defense may transfer not more than $524,926.54 to the Moses Lake Wellfield Superfund Site 10–6J Special Account. This payment is to reimburse the United States Environmental Protection Agency for its costs including interest incurred in overseeing a remedial investigation/feasibility study performed by the Department of the Army under the Defense Environmental Restoration Program at the former Larson Air Force Base, Moses Lake Superfund Site, Moses Lake, Washington. Such reimbursement is provided for in the Interagency Agreement entered into by the Department of the Army and the Environmental Protection Agency for the Moses Lake Site, in March, 1999.

(b) SOURCE OF FUNDS.—Any payment under subsection (a) shall be made using funds authorized to be appropriated by paragraph 18 of section 301 of this act for Environmental Restoration, Formerly Used Defense Sites. EPA shall retain and use the transferred amount to pay for costs the Agency has incurred or will incur at the Moses Lake Wellfield Superfund site.

Subtitle C—Workplace and Depot Issues

SEC. 321. EXCLUSION OF CERTAIN EXPENDITURES FROM PERCENTAGE –LIMITATION ON CONTRACTING FOR PERFORMANCE OF DEPOT-LEVEL MAINTENANCE AND REPAIR WORKLOADS.

Section 2474(f)(1) of title 10, United States Code, is amended by striking "under any contract entered into during fiscal years 2003 through 2006".

* * * * * * *

FISCAL YEAR 2005 NATIONAL DEFENSE AUTHORIZATION ACT—DEPARTMENT OF DEFENSE RESPONSIBILITIES IN HOMELAND DEFENSE AND HOMELAND SECURITY MISSIONS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
SUBCOMMITTEE,
Washington, DC, Thursday, March 4, 2004.

The subcommittee met, pursuant to call, at 3 p.m. in room 2212, Rayburn House Office Building, Hon. Jim Saxton (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, CHAIRMAN, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. SAXTON. Good afternoon. The Subcommittee on Terrorism, Unconventional Threats and Capabilities meets this afternoon to follow up on a topic of the subcommittee's very first hearing which occurred almost a year ago, an overview of the role of the Department of Homeland Defense in homeland security, and to follow up on those great discussions that we had last March 13. Some of those discussions involved large policy issues and others arcane technical issues, but all were important in their own way. And we haven't confined ourselves to Washington. That is, the committee members haven't confined ourselves to Washington, but we have pursued an aggressive program to get to the field and to see for ourselves. We have worked hard and learned a lot and hope that we have begun to contribute in some measure to making America and the rest of the world safer.

While we have much to learn, even today, it is time to revisit an issue we touched on last year when the responsible organizations were in their infancy. Now that the Office of the Assistant Secretary of Defense For Homeland Security, Northern Command and Department of Homeland Security (DHS) have been in operation for more than a year, it is a good time to check progress and see if there are any issues that Congress needs to address at this time. As I stated in that initial hearing, Secretary McHale's office, Northern Command (NORTHCOM), and the use of the national guard in homeland security and homeland defense missions are part of this subcommittee's natural jurisdiction; and we will take a continuing interest in your progress.

The subcommittee was interested to receive two recent reports published by the Department of Defense (DOD) relevant to today's hearing. First is a report to Congress issued on September, 2003,

and the second is the Defense Science Board (DSB) report of November, 2003. I was gratified to note that neither report glossed over the many challenges that face the Department and the Nation. Given our experience as a new subcommittee, I understand how it is that initially new organizations identify problems and issues more rapidly than they can be solved. As the Defense Science Board points out, there are many gaps that need to be filled and many new organizational relationships that must be exercised and refined.

There is one issue that neither report highlighted that concerns me, however. While I am sensitive and sympathetic to the long-standing restrictions on Federal troops performing domestic law enforcement missions, I have to say that I am less comfortable with the command and control mechanisms described in the September, 2003, report to Congress. In describing how Northern Command and the Joint Staff would watch over our National Guard troops on Title 32 status in an ongoing operation, the report states that Northern Command and the Joint Staff will have "insight" into the national guard operations. Not exactly tight control, but in conformance with the law. I am not saying that change is needed, but I am seeking a forthright statement on the record that these command relationships will work effectively.

I also note that the reserve forces of the United States are undergoing force structure changes to better accommodate the demands of mobilization. If the Defense Science Board recommendations are followed, and I believe there is some indication that they will be, the national guard will have a greater role to play in homeland defense and homeland security missions. I trust that these important activities have been accounted for on an ongoing rebalancing of reserve forces.

As I said from the outset, there is much to discuss. Let me turn to my friend now, James Langevin from Rhode Island, for any remarks he wishes to make.

STATEMENT OF HON. JAMES R. LANGEVIN, A REPRESENTATIVE FROM RHODE ISLAND, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. LANGEVIN. Thank you, Mr. Chairman.

I will begin by saying I concur with your observations, and I would like to begin by noting that Mr. Meehan is unable to attend today's hearing as he was unavoidably taken away in a matter that required his attention. On his behalf, though, I would like to thank the panelists for appearing today and welcome you gentlemen.

In addition to sharing Chairman Saxton's concerns pertaining to NORTHCOM, the Department of Homeland Security and the role of the guard and reserve, I am particularly interested to learn about existing or necessary protocols between Federal, State and local officials. As we all know, prior to 9/11 opportunities existed to thwart several of the attackers if only intelligence had been more widely disseminated. Any recommendations offered by today's panelists in this area will be appreciated, particularly if they point to the refinement of existing organizational relationships. As a member of both this committee and the Select Committee on Homeland Security, I have strongly advocated better cooperation

and coordination between the Department of Defense and other agencies. It is my hope that today's panelists can explain the progress they have made on this front and assist this subcommittee to better understand and improve our homeland defense posture.

Thank you, and I look forward to your testimony.

Mr. SAXTON. Thank you very much, Jim.

We have a great panel of witnesses for our proceedings this afternoon. Let me say welcome to you on an official basis. Our witnesses are the Honorable Paul McHale, Assistant Secretary of Defense For Homeland Defense; Lieutenant General Steve Blum, Chief of the National Guard Bureau; Major General John A. "Andy" Love, Special Assistant to the Commander, Northern Command, for National Guard Matters.

My colleagues will remember Paul McHale as a distinguished former Member of the Congress of the U.S.; and we welcome you back again, Paul.

So, without further ado, I just would like to ask unanimous consent that all of your statements be included in the record in full so that we will have a permanent record of them.

So at this point, if you would like to begin, Mr. Secretary, we are ready for your testimony.

[The prepared statement of Mr. Saxton can be found in the Appendix on page 39.]

STATEMENT OF THE HON. PAUL MCHALE, ASSISTANT SECRETARY OF DEFENSE FOR HOMELAND DEFENSE

Secretary MCHALE. Thank you, Chairman Saxton, Congressman Langevin, distinguished members of the subcommittee. Let me first offer my written testimony for the record. I understand from the comments just made by the chairman that the full text will be included.

I have to tell you that it is far more intimidating on this side of the table than it is on that side. I consider it a great privilege to be back in a room where in past days I spent a great deal of time and had the privilege of working closely with many of you. I do recall from those days that the members prefer short opening statements, so I would like to summarize my written text as quickly as I can and provide the maximum amount of time for questions that might be addressed to me or to others on the panel from among the members.

First of all, I want to touch upon the broad issue of DOD's role in homeland security; and it would be remiss of me if I didn't emphasize at the outset we at the Department of Defense believe that homeland defense begins overseas. It is our intent and our purpose to engage our enemies as far from our Nation as possible. Power projection remains a critical, even core, element of our defense strategy. We would prefer to engage and defeat the enemy overseas rather than on our own soil.

In that context, a great deal has happened since the last time I appeared before you. On the Global War on Terrorism, we have had stunning successes in Iraq and Afghanistan. The fact is that two-thirds of al Qaeda's known senior operatives have either been captured or killed. It is a reasonable conclusion to reach that that kind of proactive military engagement overseas has likely dis-

rupted the follow-on terrorist activity that might have followed the tragic events of September 11, 2001.

The Department of Defense has implemented substantial improvements in homeland defense over the past year. First let me focus on the role of the Assistant Secretary of Defense for Homeland Defense, the position I am privileged to hold. My position was created in the National Defense Authorization Act of 2003. That Act assigned to my office a challenging and sobering mission and that is overall supervision of the homeland defense activities of the Department of Defense. That means that I have oversight responsibilities with regard to the homeland defense activities of the various combatant commands, the services, the agencies and indeed all elements of the Department of Defense.

Second, let me focus on the role of the United States Northern Command. NORTHCOM is not the only entity within the Department of Defense with homeland defense missions, but I think it is fair and reasonable to say that the vast majority of homeland defense missions have, in fact, been assigned to United States Northern Command. Homeland defense activities have been assigned as well to Pacific Command and to our services and to our various defense agencies, but clearly the cornerstone of our homeland defense activity is resonant in United States Northern Command.

NORTHCOM was created by modifying the unified command plan with the approval of the President and direction of the Secretary of Defense. A new combatant command was created for the first time since the days of George Washington to physically defend the United States of America. The NORTHCOM AOR includes, with an overlap, Alaska, the Canadian land mass, the United States of America, Mexico, the maritime and air approaches to that area of responsibility (AOR).

Within the air domain, NORAD continues to provide superb defense to the United States of America. The Combatant Commander of the United States Northern Command, General Ed Eberhardt is dual-hatted and has also the command of North American Aerospace Defense Command (NORAD). Since September 11, 2001, we have executed over 30,000 air defense sorties and responded to over 1,700 requests from the Federal Aviation Agency (FAA) to intercept potential air threats. We fly daily air caps—modified so that the enemy can't anticipate where those air caps might be flown—over population centers, critical infrastructure, historic sites and government centers throughout our country.

Within the maritime domain, NAVNORTH, which is the Navy component of NORTHCOM, provides component capabilities to NORTHCOM in order to defeat maritime threats at maximum distance from our coast. The Secretary of Defense recently signed and executed an order that indicates a much more proactive approach to maritime intercept operations on the high seas in order to interject and defeat enemy threats, most especially enemy threats involving weapons of mass destruction before those threats can be brought ashore.

In the land domain, border security remains primarily a civilian law enforcement function. It has been assigned to the Department of Homeland Security. Consistent with applicable law, however, the Department of Defense is ready and prepared to support the var-

ious land border missions that are led by and entrusted to civilian law enforcement. We have quick reaction forces on alert throughout the United States. Those quick reaction forces can be deployed almost immediately so that solders and Marines, when required, will provide physical security at vulnerable sites within our own country, fully recognizing that the primary defense of physical locations within our own country rests with civilian law enforcement, fully recognizing that it is likely that in the event that civilian law enforcement needs reinforcement, the national guard in State status or Title 32 status exempt from Posse Comitatus would likely be the next layer of defense. But ultimately, if required on order of the President of the United States and direction of the Secretary of Defense, we are prepared to use Marines and soldiers to physically defend the land mass of America.

Finally, we have established Joint Task Force Civil Support. That task force was created a number of years ago. It has been significantly enhanced in recent years. It provides the primary military response to a domestic incident involving a weapon of mass destruction. It is the high-end-capable technical capability to respond to a Weapons of Mass Destruction (WMD) attack within our own Nation, and its capabilities are available almost immediately to augment and reinforce the capabilities that we find in the private sector and those which have been assigned to the Department of Homeland Security.

We believe that we should train as we will fight, and that is why we have a robust training schedule in coordination with the Department of Homeland Security national homeland security exercise program. Within the past year, we have engaged in exercises Unified Defense '03, TOPOFF 2, Determined Promise '03, Livewire, Scarlet Cloud, and Unified Defense '04. Those exercises captured a range of threat environments to include bioterrorism attacks, radiological attacks, a simulated nuclear detonation within our own Nation as well as terrorist attacks within the maritime and air domains.

Critical infrastructure is a shared responsibility. The Department of Homeland Security has the responsibility to develop a comprehensive national plan, while the Department of Defense under the Homeland Security Presidential Directive Number 7 (HSPD 7) signed by the President in December has the sector lead for the protection of our Nation's defense industrial base.

Coming back to a comment that was made by Congressman Langevin in his opening remarks, we believe that one of the paramount lessons of September 11 is the need for robust intelligence and information sharing. As you may recall, in the State of the Union address in 2003, the President proposed and we have since implemented the Terrorist Threat Integration Center (TTIC). There is an interagency capability that brings together both civilian and military sources of intelligence and homeland security-related information. It fuses the capabilities of the Department of Defense, the Department of Homeland Security, the FBI, the CIA and the Department of State so that, unlike the condition prior to September 11, those who need to share information are now doing so on a detailed and daily basis.

Let me close with a brief description of our relationship with the Department of Homeland Security. We are partners with mutuallysupporting missions. We are in the process of negotiating and in fact are in the final stages of negotiating a memorandum of agreement that will place approximately 64 DOD personnel within DHS on a full-time basis to ensure complete connectivity between DHS and DOD. There are members of my staff who work full time in the Homeland Security Operations Center to ensure that linkage on a daily basis. We have in fact established a Homeland Defense Coordination Office so that, in addition to crisis coordination, there will be day-to-day communication in advance of a crisis.

We work very closely on a daily basis with robust communication in a partnership with DHS. That partnership allows DHS to have the lead for counterterrorism activities and the defeat of terrorist threats within our own country. It is our goal within the Department of Defense to defeat those threats before they enter our country; and, clearly, we cannot afford a seam between our mission and that which has been assigned to DHS.

Abraham Lincoln once said that as our cause is new so must we think and act anew. For most of my lifetime, indeed for nearly all of my lifetime, in terms of military service the threat that confronted the United States was one which was presented to us by hostile nation states, coalitions of hostile nation states. In an age of weapons of mass destruction and transnational terrorism, where asymmetric threats may be empowered by chemical, biological, radiological and nuclear capabilities, we must now defend our Nation against a new and emerging threat, not simply a hostile nation state or a group of hostile nation states but terrorists who possess a destructive capacity that in the past could only be acquired by countries.

Mr. Chairman, I thank you for the opportunity to appear; and I certainly look forward to your questions.

Mr. SAXTON. Thank you very much, Mr. Secretary.

[The prepared statement of Secretary McHale can be found in the Appendix on page 43.]

Mr. SAXTON. General Blum.

STATEMENT OF LT. GEN. H. STEVEN BLUM, U.S. ARMY, CHIEF, NATIONAL GUARD BUREAU

General BLUM. Chairman Saxton, Congressman Langevin and distinguished members of the committee, it is a pleasure and an honor to be here today. Thank you for the opportunity. I would like you to accept my written testimony for the record, please; and, beyond that, I would like to offer a few comments before we open for questions.

First of all, your national guard citizen soldiers and airmen are doing a superb job. Today, as we sit here, we have 129,000 citizen soldiers and airmen deployed all across the globe, some fighting in places like Afghanistan and Iraq, in close combat on the ground as well as in the air, in the Air National Guard and the Army National Guard, as full partners in the total force in a joint operation in the Global War on Terrorism.

In addition, your national guard is almost entirely handling peacekeeping operations in the Balkans, Bosnia, Kosovo and the Sinai as well as protecting critical infrastructure and important DOD assets here at home as part of Operation NOBLE EAGLE. We think that we are doing what this country has asked us to do both in the home game, in homeland defense, and in the away game, homeland defense in depth at Iraq and Afghanistan, as General Eberhardt likes to call it.

You need to know that your national guard is committed to job one being homeland defense. That is what we were established for, and it would be pretty tough for an organization called the national guard not to realize its purpose was to guard the Nation.

We are a unique military force that is constitutionally established. We are the only dual-missioned force among the services, and we are proud of that. Our forefathers had great foresight for the need of such a dual responsibility. So we can be called by the governors for military application of capabilities within the States and territories; and we can also be called by the President for Federal duties as a Reserve component of either our land component, the Army, or our air component, the Air Force.

As the result of the Defense Science Board of '03 findings and as a result of requests by the combatant commanders of Northern Command General Eberhardt and Pacific Command Admiral Fargo, we have developed four initiatives to make your national guard more ready, relevant, accessible and reliable for homeland defense, whether it is here at home or whether it is abroad.

Those concepts include the establishment of a standing joint force headquarters in every single State and territory. When you go back to your constituents, you will find that a joint force headquarters, a standing joint force headquarters has existed since 1 October of this year. It has the unique capabilities to do command, control, communications, intelligence, surveillance and reconnaissance for the governor, for the adjutant general; and it can coordinate all the activities of all the DOD assets within that State or territory that are under the control of the governor. They also provide situational awareness and intelligence feeds to both the combatant commander of NORTHCOM and Pacific Command as it relates to homeland defense issues.

As you well know, you can separate the Department of Homeland Security and the Department of Homeland Defense fairly easily here in Washington, D.C, but as you get out in the United States where governors govern, it is impossible. You cannot separate homeland defense from homeland security at the State level. So the national guard finds itself balancing its capabilities to do homeland defense for the governor and support for homeland security operations that are vetted through the JDAM process, through the Joint Director of Military Support so that the application of DOD assets, be that Army and Air National Guardsmen responding under the control of the governor, is not done in a cart blanche or blank check method but done in a vetted process.

The standing joint force headquarters finds itself uniquely positioned to be very good at facilitating that response so that the response is timely. As you well know, national guard responding overseas has often been criticized for being late or too slow and

cumbersome following the current mobilization process. That process is being looked at very seriously and being modified as we speak, and the time that it takes for a national guard citizen soldier to transition from a citizen to a soldier is being shortened every day by efficiencies that are taken by the Department of Air Force and the Department of Army to make sure that is possible.

When you talk about homeland defense, you don't even have time even for that efficient step to be applied. You must transition and become something back to the future, so to speak. The national guard must be your 21st century minutemen, able to do that transition literally in minutes, because anything more than hours is too late. We need to almost have a 9/11 type of response when you need your national guard for homeland defense.

The standing joint force headquarters has a significant role to play in making that a reality. We cannot always do that right now, so we need to change a few things: the way we are structured, the way we are resourced, the way we are trained, the way some of the units that we have and our capabilities are distributed around the Nation.

We have taken some initiatives to do that.

First of all, we have established our National Guard Chemical, Biological, Radiological, Nuclear and High Yield Explosive Enhanced Response Force Package. It is a big mouthful, but what it does is it leverages—it takes existing units in the Army and Air National Guard and gives those units—medical units, chemical units and general purpose security units—it gives them extra equipment and enhanced training so, when they are coupled together with the civil support teams that will be fielded in every State and with the quick response forces and the rapid response forces that each governor is standing up, you will have a sea-berth-like capability by 1 October of '04, this year, in each of what we call Federal Emergency Management Agency (FEMA) regions or Federal regions around the country, and that will be accomplished by 1 October '04.

Ultimately, the national guard would like to see that in each State, able to respond to each governor. You have a handout in front of you that describes where our current capabilities are and how they would be coupled. If I could uncover the slide quickly.

The States shown in the lower right-hand corner show the civil support teams (CST) and where they are now. We have 32 of them that are fielded, trained, equipped and certified. We are awaiting the Secretary of Defense. Very shortly, he will be announcing the next 12 that will be fielded. We are fully funded for all 55 of the POM in the Army Program Objective Memorandum (POM) in the Army POM.

You need to know we are sufficiently funded to field these teams. We need the authorization to put them out. The Secretary of Defense will announce these. These are the brains of the outfit, so to speak, tells you what your agents—and what you need to do about it and provides the incident commander, the policeman, fireman or the emergency responder out of the civil sector, the communications and the command and control (C2) augmentation it would need in time of crisis so it could bring in this enhanced response package.

The gold-colored States are the States that are in the first program and will have this capability by 1 October. The States in the lower left-hand corner shown in green have battalion-sized reaction forces already in being that can respond in a matter of hours, as opposed to the Federal Quick Reaction Forces (QRFs) and Rapid Reaction Forces (RRFs) which will be there, at the best, in several days. The ones that are shown in amber are those that are in the process of standing them up. And you see four in red that I have some work to do with those governors and those adjutants general to get them on board.

In addition, to get to the heart of what Congressman Langevin talked about, we are standing up a joint communications—a Continental United States (CONUS), communication support element. What this does is actually blend the ability to cross-talk with all of the information that is needed to manage any incident that would be required here at home as regards homeland defense. It bridges DOD's capability to talk between the Army, the Navy, Air Force, Marine Corps and the Coast Guard, which is extremely important in the homeland defense operation; and it also makes the collaboration possible for information sharing and communications deconfliction with interagencies and intergovernmental agencies that would also be needed to respond.

Last, we are rebalancing the national guard to divest ourselves of formations and capabilities that are no longer needed for current threats and the future threats we see on the horizon. It no longer takes a superpower to attack a superpower, as we have all found out; and we are organized to fight one superpower against another superpower. We are set up to be, essentially, a strategic reserve; and we need to come out of that mode and move to an operational reserve that is capable of joint and expeditionary operations both here at home in order to conduct homeland defense operations to support the homeland security operations or to respond and be available to a combatant commander such as we are doing in Afghanistan, Iraq and in the Balkans right now.

While we remain deployable warriors, these concepts are some of the ways we are working to strengthen your national guard for operations currently and in the future for homeland defense.

Thank you, sir.

Mr. SAXTON. Thank you.

[The prepared statement of General Blum can be found in the Appendix on page 54.]

Mr. SAXTON. Now we will move over to hear from the Air Force, General Love.

STATEMENT OF MAJ. GEN. JOHN A. "ANDY" LOVE, U.S. AIR FORCE, SPECIAL ASSISTANT TO THE COMMANDER, NORTHERN COMMAND, FOR NATIONAL GUARD MATTERS

General LOVE. Thank you very much. I am grateful and honored to be here.

By way of introduction, in addition to the job I am delighted to say that I hold at the moment, I am also a Colorado National Guardsman; and on behalf of General Eberhardt and the dedicated men and women of NORAD and U.S. NORTHCOM, I am doubly honored to be here.

Let me begin by saying that I could not be more proud of America's reserve component and its patriotic devotion to the defense of our homeland. Among the reasons for that pride was mentioned by Secretary McHale when he identified the fact that over 30,000 homeland defense sorties have been flown, many of which have been flown by America's national guard, and not one incident has occurred, not one injury, not one loss of an aircraft. That speaks volumes about the capability and professionalism of that force, and that does not in any way exclude those soldiers who have performed homeland defense, homeland security missions over the past 18 months, again in a flawless and patriotic and professional way.

As you are aware, not since the birth of this Nation has the reliance upon our national guard to protect our citizens both at home and abroad been greater than it is at this very moment. With the recent completion of United Defense '04 10 days ago, I appear here to assure you the capability of U.S. Northern Command has taken to counter the threats of the 21st century as robust and competent.

My written testimony contains a number of specific proposals earlier identified by General Blum which have been adopted by U.S. Northern Command as desirable, and the command is currently in the process of developing and defining requirements which are consistent with the capabilities he described.

I am delighted to be here. Your continued commitment to the defense of our country and support of our Reserve component is gratefully appreciated. Thank you.

Mr. SAXTON. Thank you.

[The prepared statement of General Love can be found in the Appendix on page 61.]

Mr. SAXTON. We will move on to some questions now; and we will begin with our ranking member, Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman; and, gentlemen, thank you for your testimony.

Before I begin, I just wanted to mention to General Blum and General Love how proud we are of the guard and reserve and the job that they are doing; and we recognize that they are an integral part of our Nation's defense. In particular, I had the privilege of traveling myself to Iraq and had the opportunity to meet with our Rhode Island National Guard soldiers who are on duty there for the 115 Military Police (MP) battalion and doing an outstanding job. So we thank you both for your service; and, Secretary, thank you for being here, too.

Secretary McHale, if I could just start by asking—couple of things you have mentioned in your testimony. I am interested in the status of fielding weapons of mass destruction support teams to our States and territories. I understand, as the General mentioned, that 32 teams have been fielded, but the need is great for all States and territories obviously to have them in places as soon as possible. So could you describe DOD's timeline for establishing new teams and what are the criteria for deciding which States will get the next teams and how long you believe it will take for implementation of all the authorized teams?

Furthermore, what is DOD doing to encourage greater coordination and cooperation among civil support teams in neighboring

States to ensure appropriate coverage and response in the event of an emergency?

Secretary MCHALE. If I look a little blurry-eyed, it is because I was in San Antonio, Texas, last night speaking to the commanders of those CSTs. They were having a symposium at which they brought together all of the commanders of the existing 32 certified teams plus the basic command structure of those units that are likely to be created on the basis of the timetable about which you just inquired.

As I told them last night, I was honored to be in their presence. These are incredible men and women drawn from the Army Guard and the Air Guard. There are 22 folks assigned to each team. They have an assessment capability for weapons of mass destruction such that if our country experienced a domestic WMD attack, the very first men and women in uniform that would respond to the site of that attack would likely be the members of our CSTs.

They would use sophisticated sensor systems to determine the nature of the contaminant to reach a greater understanding of what kind of remediation would be required. They would make judgments as to how persistent that contaminant might be so that those that would follow them into the hot zone would be well prepared in terms of an expectation as to what they may face.

We have 32 CSTs currently trained and certified. They are in Title 32 status, which means that they are under command and control of the governor and—but they are paid for by the Department of Defense. We provide their training, equipment and certification.

The Congress of the United States has mandated by law that we create 55 CSTs to ensure that there will be at least one CST in every State and territory. California has currently two CSTs, so ultimately we will have 54 jurisdictions and 55 teams. The Congress provided, if I recall the number correctly, I believe it was $88 million for 12 new CSTs this year. I have, in fact, made a recommendation to the Secretary of Defense with regard to the selection of those 12 CSTs. The Congress indicated, I believe it was in report language, that special consideration should be given to coastal States because of their maritime vulnerabilities.

We look primarily at population. That is what guided the selection of the first 32 CSTs. But in letters that I have sent to Members of Congress, including one I think I sent to Chairman Saxton, I indicated that other factors should be considered such as vulnerable critical infrastructure, sites of DOD vulnerability, historic sites and other targets that might be chosen by a terrorist group that would go beyond the consideration of population concentrations. My expectation is that the Secretary of Defense will act on the recommendation within a matter of weeks.

I believe that the criteria we selected, which reflected also vulnerabilities related to WMD attacks, will likely prevail. So I think most of the States that would be chosen in the next 12 would be States with major populations and, in some cases, large population centers in combination with vulnerable critical infrastructure.

It is also our expectation that the Congress is likely to provide funding for the final 11 teams next year. So, if the statutory lan-

guage works out as we expect, there will be 12 new teams selected this year. The States selected will be announced in a matter of weeks; and if the Congress provides the proper statutory and funding support, the final 11 will be chosen next year.

Mr. LANGEVIN. Thank you, Mr. Secretary.

Mr. Chairman, if I still have time—if I could, Mr. Secretary, with respect to NORTHCOM, can you tell me what command and control systems you feel may be needed to ensure a more coordinated homeland defense effort and what is being done to ensure secure communication links between NORTHCOM, the Department of Homeland Security and State and local government agencies, particularly with regard to intelligence and warning information?

Additionally, what is the relationship between NORTHCOM and the Terrorist Threat Integration Center? I know there is a relationship there, but how robust is it and could you give us a few more details?

Secretary MCHALE. NORTHCOM—and perhaps General Love can address this in greater detail, but NORTHCOM has well-established liaisons with and lines of communication to the various intelligence agencies, international and domestic, possessed by our country. There are, for instance, CIA and FBI and DIA liaisons at Colorado Springs co-located with the combatant command.

The relationship with TTIC itself, which is at the departmental level, is led by the Under Secretary of Defense for Intelligence, Dr. Cambone. His position was specifically created to execute that kind of coordination function between DOD and TTIC. TTIC is an overarching umbrella of intelligence integration which brings together the collection activities and the relevant information with regard to numerous Federal agencies, the leads among those being the Department of Defense, the Department of State, FBI, CIA and, of course, DHS itself.

Now to come back to the first part of your question, NORTHCOM's relationship to the Department of Homeland Security in a domestic setting is one of support. When we experience a domestic terrorist attack under HSPD 5 as well as the Homeland Security Act, the lead in responding to that enemy threat within our own country has been assigned to the Department of Homeland Security. We provide support to that civilian-led effort both in terms of consequence management and in some cases we provide limited military activity within our own country to defeat an enemy attack if civilian law enforcement and the national guard cannot meet that mission requirement.

Basically, what we do is rely upon and have built upon the well-established procedures of the Stafford Act. When there is an attack in our country, the President would normally make a declaration of a major disaster. That would put DHS and FEMA in the lead. Where we have unique capabilities within the Department of Defense or our civilian authorities are overwhelmed by the magnitude of the attack, FEMA would normally make a request for assistance to the Department of Defense. It comes to me, and I make a recommendation to the Secretary of Defense. Upon his direction, military forces in a supporting role are then deployed to assist civilian authorities. Nowhere is that more important than in responding to an attack involving a weapon of mass destruction.

If, in fact, we experienced a WMD attack within our own country, we would anticipate that local and State capabilities would be first brought to bear. If the attack rose to a level that State and local capabilities were deemed to be insufficient and a major disaster were to be declared under the Stafford Act, FEMA would take the lead; and we anticipate we would then see entities such as CST's, which is what the General was describing earlier in terms of the evolving national guard capability, sea berth from the Marine Corps.

At the ultimate end, high end of our Nation's capabilities, Joint Task Force Civil Support located in Norfolk, Virginia, has a very large task-organized capability that is designed to respond in an emergency circumstance within hours to a domestic WMD attack so that highly trained soldiers in a large task force in a supporting role assisting FEMA would be available to deploy to the site to initiate remediation activities, to include assessment, decontamination, medical care, extraction and all the kinds of capabilities that would be required following an attack following a weapon of mass destruction.

Mr. SAXTON. General Love, do you want to comment?

General LOVE. Congressman, the only thing I can add to that that may assist you in understanding it is that, in addition to the capabilities that Secretary McHale just described, United States Northern Command has created a combined intelligence fusion center in Colorado Springs where all the representatives of the agencies that he described as well as the National Security Agency (NSA) are resident, the purpose of which is to look at all of that intelligence from a military domestic viewpoint and attempt to understand and anticipate not only what may be an immediate threat to the United States within our borders but what may constitute a threat that may be being created or conceived in places outside of our borders.

Additionally, thanks to the Congress for identifying the nexus between the counterdrug activities that we have been conducting in conjunction with the other agencies of the Federal Government. The connection between that and terrorism, we have begun the efforts to combine the activities of Joint Task Force 6 (JTF 6) located at El Paso, Texas, which has been engaged in support of civil authorities in the counterdrug business into the Joint Interagency Task Force North, the objective of which is to bring greater emphasis to that activity in a counterterrorism role. JTF 6 has the El Paso intelligence center. We can now use that very significant and robust capability to add to that which we are developing as well.

Mr. LANGEVIN. Thank you, gentlemen, and thank you for the job you are doing on behalf of the country.

Mr. SAXTON. While we are moving over to Mr. Gibbons to ask a question or two, let me recognize our former colleague, Bob Underwood. Bob, welcome back. We miss you.

Mr. UNDERWOOD. I am more interested in talking to Paul, too, but thank you very much. Not that I don't miss you, Jimmy.

Mr. SAXTON. Mr. Gibbons.

Mr. GIBBONS. Thank you very much, and to each of our panel witnesses today let me add my voice to the chorus of accolades for the fine job you have done in taking I think a very, very difficult

task which is creating a defense of the homeland that we never had prior to September 11 or with the same intensity we have today.

I am especially pleased with how our guard and reserve forces have participated and have really met the expectations not only of the Department of Defense but met the expectations of various States who are literally in charge of their militias as well as the American public who for so long relied on, as you have said, Mr. Secretary, since long before 1775 the militia was there in defense of our Nation. And to my friends, General Love and General Blum as well, great job, guys. We are very proud of you.

I did have a question with regard to the issue of Title 32 versus Title 10 status, where we have guard forces that are called up on what is known as other missions.

As you all know, counterdrug and CST missions are specifically legislated in Title 32 of the U.S. Code, section 502. As a result, there have been questions raised both by the National Science Board under the Department of Defense roles and missions aspect as well as the National Governor's Association and the Adjutant General's Association have raised concerns about the differentiation of guardsmen who have been performing duties or other duties during—in times of crisis or needs of our Nation after September 11 where the funding is an issue because of their status.

I guess my question would be—and I first would like to direct it to General Blum and maybe General Love if they want to answer as well, even to you, Mr. Secretary, as well and that is, do we need to clarify the language of Title 32, section 502, to make sure guardsmen can be employed under that status, Title 32 status, for operational missions and not just training and support duties? How would a change like that help you execute the War on Terrorism? General Blum.

General BLUM. Thank you, Congressman. I think it would be enormously helpful as long as the Congress retained the vetting process so that this was not an unconstrained use of Federal funding under State control. I think the Department would probably support legislation in that direction, frankly. I think all in the last 3 years or 2-and-a-half years in particular have seen that, an expanded use of Title 32 in an operational mode through a vetted process. Where it is clearly identified that that requirement is necessary to be performed by using Federal capabilities, using Federal funds, using military capabilities but retained under the control of the governor is usually helpful to the Department of Defense because it allows us when we are using the guard in that role to keep from diverting Army, Navy, Air Force, Marine and Coast Guard from their Title 10 and 14 utilizations to do what is very uncomfortable and illegal for them to do because of Posse Comitatus and other limiting factors.

Short answer is, we would welcome it. Again, as long as it is a vetted process, I think the Department of Defense would support it.

I will have to defer to Secretary McHale.

Secretary MCHALE. At this hearing today I am not prepared to say that the Department of Defense would support that proposal. Let me put it in context for a moment, if I may.

When the national guard is used in State status under State active duty, it is under the command and control of the governor. The use of the guard under that circumstance is at State expense, largely beyond the reach of the Federal Government and in that status exempt from Posse Comitatus. So the national guard in State status at State expense can engage in activities that come very close to if not in fact can be described as law enforcement activities.

In Title 32, it is a middle ground with significant operational and funding implications. In Title 32, the national guard remains exempt from Posse Comitatus. The national guard is subject to the command and control of the governor, not the Secretary of Defense, not the President of the United States, but the expenses associated with Title 32 are paid by the Federal Government and paid by the Department of Defense. Because, as Congressman Gibbons indicated, in Title 32 status, the training opportunities are deemed to be relevant to the anticipated Federal mission. So it is the best of both worlds in terms of flexibility and, from a State perspective, funding. State command and control, exemption from Posse Comitatus, paid for by the Department of Defense.

The third option, of course, is bringing the guard to Federal status under Title 10 when the guard is paid for by the national government and becomes subject to Posse Comitatus.

One of the emerging missions that I think will be of increasing importance for the national guard in an operational sense is the assignment of critical infrastructure protection. If we have a heightened period of threat and it appears that there is credible intelligence that specific sites in certain States might be subject to a terrorist attack, it seems to me, based on past experience and comprehensive analysis, that the guard is ideally suited for that mission. The guard is geographically disbursed, can be quickly deployed to work closely with law enforcement officials.

The question then becomes, in what status should the guard execute that mission? When the guard is defending a site within a State against a foreign terrorist threat, should that be paid for by the host state or should that be considered part of the national security response paid for by the Federal Government? Up to this point, the practice has been to do it in State status. So that during Operation Liberty Shield, which was initiated by Secretary Ridge just before the start of hostilities in Iraq, the guard was called up in quite a few States for the mission, and the guard was paid for at State expense.

That remains an open-ended issue in the future. If the guard is to be used more frequently as part of the coordinated national strategy, should that be continued to be a State expense or should it prospectively be considered a national expense related to Title 32 with possible statutory modification to allow it? There are enormous budgetary considerations here that must receive serious review.

In addition to the operational considerations, I am not prepared to go so far as to say the Department would support it. I know the Department is certainly willing to take a hard look at it so long as we are realistic about how much it is going to cost if that change occurs.

Mr. GIBBONS. I think, Mr. Secretary, you articulated the problem about describing what other duties and the problems other duties have now in the current legislation, which is giving most adjutant generals and including the Guard Bureau concern over the fact that we have articulated counterdrug and CST missions in the statute, but when you define other duties, there is an ambiguity what other duties are, whether they are domestic missions of infrastructure protection or something related to national security.

That, in my view—and I think that is the reason I asked the question, do we need to clarify Title 32 so that those, quote, other duties fall into the status so that General Blum, when he gives an order that the airport in Pennsylvania or Pittsburgh, someplace, needs to be protected, is that an order that comes with the designation of funding from the Federal Government or is it still a State status funding mechanism, which, of course, leaves many States in an unfunded mandate problem.

I didn't mean to take this long, Mr. Chairman. I see General Blum has an issue, and I then General Love wanted to answer.

General BLUM. I would not issue an order because I don't have the authority to issue the order. That order would probably be a request from the Combatant Commander of Northern Command or Pacific Command to have that particular infrastructure protected, and that would go through a vetted process. All I am suggesting is that it would be a great arrow to have in the Secretary of Defense's quiver or the Office of Secretary Defense For Homeland Defense to have that arrow in Mr. McHale's quiver, if we should choose to use it.

Mr. GIBBONS. I think we are singing the same song and are on the same page.

General LOVE. I would like to add one thing, and that is I am sure we all agree that there are no second-class soldiers or airmen in our military forces, nor should there be. As we have looked at providing this chemical, biological response force within the States, we have looked also at the Federal Tort Claims Act, and it appears that it will offer immunity to soldiers or airmen serving under Title 10. It will also offer an identical immunity to soldiers and airmen serving under Title 32 but obviously does not cover those serving under State active duty status.

If they are to go into a disaster site and offer medical assistance, there is an opportunity for them to be potentially liable for whatever; and it seems to me that we should offer, in response to a terrorist attack from an external source, the same immunity to guardsmen as we would offer to soldiers.

Mr. GIBBONS. I would agree.

Thank you, Mr. Chairman, for your indulgence.

Mr. SAXTON. Mr. Kline.

Mr. KLINE. Thank you Mr. Chairman. Thank you, gentlemen, for being here. Mr. Secretary, always great to see you again, no matter what color suit you are wearing today.

I share your admiration and great respect for what the members of the guard are doing, guard and reserve. The Minnesota National Guard, the bulk of the forces I believe still in Bosnia are from Minnesota. The Minnesota Air Guard is not only flying in support of

NOBLE EAGLE, but the C–130's have repeatedly gone to Central Command to fly support missions there.

I noticed, General Blum, that you had a figure of 129,000 citizen soldiers who are overseas. So the question is, do you have any concerns about those large numbers of the national guard being overseas, recognizing that the best defense is a good offense. Can you comment about where you think we are in that regard?

General BLUM. If you will put up the next chart, please, I think I can get to that in a graphic way.

In front of you, all of you have a pie chart of red, yellow, green. And red is good on this chart. That means that is the number of citizen soldiers and airmen that you have home in your own State or your own constituencies' zip codes. The green slice of the pie is what is deployed and on active duty, as you just alluded to Congressman Kline.

What I have tried to do is to balance the contribution of the national guard, both Army and Air, in its response to the President for the Federal mission and then its response to the governors in the State mission.

In talking to—if you look to the pyramid on the right side, that is not a national guard diagram. That is the Department of Defense/Department of Army specific diagram that recognizes Secretary Rumsfeld's desire to have the first 30 days of a joint and expeditionary operation largely be remote, as far as possible be active duty forces, and it makes good sense for the reason you brought up.

The national guard is really a stool balanced on three legs, one leg being a service member, one leg being a family member and the third being our civilian employers. So if we are going to be able to sustain about 25 percent of our force, which is represented in the green quadrant that says mobilized and deployed, that is about 129,000 citizen soldiers and airmen right now, with a similar number getting ready to go to replace them sometime over the next year, year-and-a-half. That leaves the governor about 50 percent of the capability of his or her Army and Air National Guard to be able to respond in an extreme condition. They could get up to 75 percent because the part in the amber is also available because they haven't yet gone overseas. But the part that is green is gone and not available to the governor and of great concern to the governor because of the newly focused concerns on homeland defense in the last 2-and-a-half years.

So what we are doing is making a conscious effort as we call units up to make sure as you look at the members of this committee and what their pie charts look like you can see we have been careful not to exceed breaking that 50 percent capability. We feel a minimum 50 percent of the force is going to be necessary, but within that force it also has to have the capabilities for command and control, maintenance, aviation, engineers, security forces, medical and so forth as we described a little bit earlier. So we are balancing or sharing the burden across all of the States and territories as equitably as we possibly can so no one State or territory takes on an unfair burden.

When I came into this job a little less than a year ago, I couldn't tell you that. There were some States that had paid more than their fair share; and, frankly, had there been an incident in their

State, they would have been somewhat at risk if it were not for interstate compacts, emergency mutual assistance compacts.

I am happy to report to you today that right now 53 of the 54 possible governor compacts have been signed. Only one, the State of California, has not signed such a compact. It is not that they are reluctant, they have other issues they are working right now. I expect that compact will be signed in the near future so every State and territory and every governor has agreed we will be able to cross State lines with their national guard forces to mutually support one another in times of emergency.

I hope that gets to your question.

Mr. KLINE. It does very well. Thank you, General.

So you feel like those compacts are going to allow sufficient members of the guard to respond inside our borders, if required?

General BLUM. Yes, sir. The short answer is, yes, sir; and that was my commitment to the 54 governors when I met with them about a week and a half ago.

Mr. KLINE. And then my final comment, because I see my time has expired, it is still not fair. I am looking at Chairman Saxton's State. He has got a little bitty wedge of green and we have got a big wedge of green, and so I am——

Mr. SAXTON. That should make you proud.

General BLUM. Sir, those wedges will ebb and flow as the rotations change. The number of soldiers that deploy will dramatically change from time to time. As they come home and out of theater, your wedge will narrow; and then as the next group goes out, his wedge may look much worse than yours.

Mr. KLINE. I have great confidence that that is the case, General. Thank you very much. I see my time has expired, so I will——

Mr. SAXTON. Just in time.

Mr. Bartlett, please.

Mr. BARTLETT. Thank you very much. I am very pleased to be here today and to welcome—since you are quite young, I will refer to you as longtime friends, not old friends. Is that okay?

Secretary MCHALE. That is fine.

Mr. BARTLETT. The Secretary and I came into Congress together in 1992, and I worked for many years with General Blum in Maryland. Good to see you both here. Glad to welcome a new friend.

I am probably the only person here old enough to well remember World War II, and I can remember writing 1933 on my school papers. I remember after that war, when I worked for IBM Corporation during the Cold War, I had a concern that somebody ought to be looking at how we reconstituted ourselves in the event that there was a nuclear war and what would we do when we emerged hale and hearty from the fallout shelter which—there are none now, by the way, for the general population.

And so I started asking that question, and what I—and my management at IBM thought that was a question that needed to be answered, and so they asked me, please, to pursue that. I found nobody in our whole country that had any responsibility for how we reconstituted ourselves. I went to civil defense, and they said their responsibility is to have us exit the fallout shelters hale and hearty 6 weeks after the nuclear explosion. And they did a very good job of preparing for that. But I thought that maybe the Nation that

really won that war, which I am glad never occurred, would be the Nation that picked itself up out of the ashes first and reconstituted its society. And, strangely, nobody had that responsibility.

The question I am going to ask relative to that is, there is something that I think that we really, really need today, and I want you to tell me who has that responsibility, because I don't want it to fall through the cracks like obviously that one did during the Cold War.

Now, fortunately, we never had a nuclear attack, so we never had to deal with that problem of how do we reconstitute ourselves. But what I don't see is much emphasis on the old civil defense. Clearly, we will be collectively as strong as we are individually, and in the event of a catastrophic event, wouldn't it be very nice if our individual families and people were self-sufficient and did not represent a burden on the system?

And, tell me, who has the responsibility for civil defense today so that families are stockpiling the right things, so that they have the right knowledge, that they are preparing for these events? Who has that responsibility?

Secretary MCHALE. With silence on both sides, I will be happy to address it.

Congressman, your question touched on, I think, three relevant points of interest. First of all, with regard to reconstituting our government and the activities of the Department of Defense related to continuity of operations and continuity of government, that requirement to reconstitute our governmental capabilities within the Department of Defense following an attack of the type that you described has now been assigned to my office, and so within DOD/COCOG responsibilities have now been assigned to the Assistant Secretary of Defense for Homeland Defense, and we, in turn, play an important role in terms of governmentwide challenges associated with reconstituting our government or ensuring continuity of government following a devastating attack.

With regard to the private sector, which was the thrust of your question, the Department of Defense has responsibilities that have been assigned to us under HSPD–7 with regard to the defense industrial base. We in the Department of Defense have been directed by the President to coordinate the protection of those elements of our defense industrial base that are important to our DOD warfighting capabilities.

Now, that doesn't mean that we are going to surround Defense Logistics Agency (DLA) contractors with soldiers and Marines. It means that in the coming months we and ASD homeland defense will coordinate with private contractors and owners of these facilities, civilian law enforcement entities, the national guard in various statuses, perhaps to include Title 32 and Title 10 capabilities, to make sure that the defense industrial base will remain strong and operational under any circumstance, regardless of the magnitude of the enemy attack. That is a DOD responsibility, and that, too, has been assigned to my office.

But when we move beyond the Department of Defense out into the broader civilian community, beyond the defense industrial base, that responsibility has been assigned to the Department of Homeland Security. Critical infrastructure protection generally is a DHS

lead, and coordination between the national government, State and local government and the private sector for purposes of physical security within the United States of America is a DHS mission.

I think those are the three elements we have to address. Internal to DOD, my office has that responsibility. The defense industrial base, the Department of Defense has the lead; but in the civilian sector with DOD support and perhaps DOD technology, the lead has been assigned by law to Secretary Ridge.

Mr. BARTLETT. Thank you very much, and a person representing that responsibility is not at the table today, so we need to ask this question in another forum. I will ask it in another forum, because I don't see—if they have that responsibility, I don't see a whole lot of activity out there. And I know that they are new and they have a whole lot on their plate, but I think that we need to be pretty aggressively pursuing arming each of our families and each of our citizens with the kind of knowledge that they will need so that they will be an asset rather than a liability in a catastrophic situation like this.

Secretary MCHALE. Well, I can give you this assurance. Enormous progress has been made in terms of our ability to respond not only to an attack involving a weapon of mass destruction by the foreseeable possibility that we would experience multiple, simultaneous or near-simultaneous WMD attacks at diverse physical locations. That fits the pattern of activity that has been reflected in the planning of our terrorist adversaries in the past. They don't hit us in one place. They hit us in a numbers of places, and they hit us as hard as they can for maximum carnage and dramatic effect.

And so we have to anticipate and we do anticipate the possibility that terrorists would hit us at multiple locations simultaneously, using weapons of mass destruction, if they have the opportunity to do so.

In terms of a response to that kind of attack, DHS has the lead. FEMA would normally be the lead organization under DHS, but FEMA would often turn to the Department of Defense for assistance once civilian capabilities were shown to be inadequate.

One of the major achievements that we have accomplished within the past 2 years is the ability to deploy DOD capabilities to multiple WMD sites nearly simultaneously. If we had faced that challenge 2 years ago, it would have been daunting; it is substantial today. But we do have today the ability to respond to multiple events in a way that we could not have responded 2 years ago, and that immediate response, whether it is the CSTs or the chemical biological incident response forces or JTF civil support working with our civilian colleagues over at FEMA and at the State and local level, we are much more capable today in beginning that remediation process following a WMD attack than we would have been 2 years ago. It is a major accomplishment.

Mr. BARTLETT. Thank you very much.

Thank you, Mr. Chairman.

Mr. SAXTON. Thank you. Mr. Secretary, Mrs. Davis came in, but I am going to let her get settled, and I will go ahead and ask my questions if that is okay with you. Thank you.

Mr. Secretary, the Defense Science Board report of November of last year made several recommendations concerning the national

guard and Northern Command, and you were quoted shortly after the report was published, "Those remarks go beyond the Defense Science Board's recommendations regarding employment of the national guard and suggest that the national guard be tasked more systematically with the requirement to protect critical national infrastructure."

You are nodding that you are in agreement, and so how, in your opinion, should the guard be resourced and trained to undertake this mission? Or is it already adequately so in both cases?

Secretary MCHALE. The guard has tremendous current capabilities, but there are evolving mission requirements that will require new doctrine and training related to those emerging missions. We worked—first of all, let me say the Defense Science Board did a terrific job in providing the single most comprehensive, overarching architecture for an understanding of homeland defense. They took it on as their summer study last year.

Members of my staff worked very closely with the Defense Science Board. Among other things, they recommended the creation of regional chemical, biological, nuclear incident response forces of the very type that General Blum has now proposed. His proposal is very much in conformity with and, I believe, a product of the DSB recommendation.

The quote that, Mr. Chairman, you attributed to me is an accurate quote, and it comes back to some of the things I said earlier when I was addressing questions from Congressman Gibbons. For 200 years, two oceans protected our country against an internal attack by a foreign adversary. For 200 years, we were able to focus on expeditionary warfare without an immediate concern that there would be a domestic attack brought to our own shores by a foreign adversary.

On September the 11th, it became tragically clear that our enemy now considers the United States of America as an integrated part of a global battlefield and that rather than facing soldiers and Marines overseas, the enemy may well try to strike us at home with maximum carnage, using the most powerful weapons they can acquire. That means that unlike most of our Nation's history, we now have a requirement for physical security against foreign threats right here on our own soil.

Now, the Department of Defense has looked at that mission requirement and has concluded that the national guard is extremely well suited to that mission requirement of providing critical infrastructure protection. Whether it is the ground defense of a nuclear power plant, the ground defense of a pipeline or a bridge or an historic site, the national guard is well trained and well suited to that mission requirement. The guard is geographically dispersed, can be deployed quickly, there is flexibility of command and control under the governor, and the guard is exempt from posse comitatus. So you can have guardsmen from a State working side by side with local law enforcement officers.

It also means, as General Blum indicated earlier, that we won't have to deploy Title 10 QRF/RRF forces. We won't have to send soldiers and Marines to execute that mission if the guard competently executes the mission under State status or Title 32.

Now, in terms of training, the requirement is for general utility forces for security—to protect a pipeline, to protect a bridge, to protect a nuclear power plant. We now protect our major pieces of critical infrastructure from the air. We routinely fly air caps, often using the Air Guard, to protect the vulnerable sites for which we now must consider ground protection as well as protection from the air.

Because so many of these sites are in close proximity to civilian communities, we are going to have to reexamine how we provide physical security at these sites without endangering the surrounding civilian population. How do we defeat the terrorist threat without endangering innocent civilians? And I frankly think what one of the technologies that we have to look at very carefully and with a sense of urgency on the part of the Department of Defense is the emerging requirement for effective nonlethal weaponry so that we can use nonlethal weapons in training and doctrine, in possession of the national guard in order to provide the strong defense of a point target without the risk of a stray round injuring an innocent civilian.

So the guard is well trained today for traditional security missions. The guard is well positioned to take on the bulk of the CIP mission requirement within our own country, but we cannot be complacent. The guard will need new weapons, including nonlethal weaponry, and new doctrine to execute that ground defense without endangering civilians in the surrounding community.

Mr. SAXTON. Tell me again what CIP is, please.

Secretary MCHALE. That is critical infrastructure protection, and it means the physical protection of sites that may be vulnerable to an enemy attack. It may be a defense contractor. That is quite common, the possibility a defense contractor critical to the Department of Defense might be attacked by terrorists. Or it may be civilian critical infrastructure such as bridges, dams, nuclear power plants, pipelines and so on.

Mr. SAXTON. It was interesting. Immediately in the aftermath of September 11th, 2001, we decided that we had to protect as many targets as we could possibly protect, and as time has gone on, we have recognized that there are targets that we have to protect and there are potential targets that we probably can't afford to protect or we don't have the resources to protect or we don't have the manpower or capability of protecting on that grand scale.

You have mentioned some of the important critical infrastructure targets, and I would suggest—and this is not the right place to talk about it, but I would suggest that some of those are more important critical infrastructure targets than others. And my observations are that we still have a ways to go in some cases. We need to have this conversation in another forum, and we will do that.

Secretary MCHALE. Congressman, I can give you a brief and encouraging response, in part, to the observation you just made. Part of it comes back to what Congressman Langevin was saying earlier, and that is, we need superior intelligence so we can identify among the universe of potential targets the ones that are more likely to be hit, so we can prioritize the vulnerabilities; and then second, my office recently received responsibility for DOD's critical infrastructure protection mission—not just within the United States, because

so much of our critical infrastructure is in the United States; worldwide responsibility for CIP has now been assigned to my office.

We have a Defense program Office For Mission Assurance that has, for many years, systematically, very carefully from a precise engineering standpoint, analyzed the vulnerabilities of critical infrastructure within the Department of Defense; and I think the encouraging news is, we are now working very closely with the Department of Homeland Security so that they have the opportunity, if they wish, to adopt some of the CIP analysis that has been employed within the Department of Defense for more than a decade.

We do have some expertise in this area. We know how to examine points of vulnerability, and we believe that that kind of expertise can be systematically migrated to the civilian community and specifically to support the critical infrastructure mission requirements that have now been assigned to DHS.

Mr. SAXTON. Thank you.

Let me ask a question on the same subject of General Blum and General Love. Given the Defense Science Board's report and given Mr. McHale's notion that maybe we need to go even another step or two, explain for us, if you will, the function of the national guard in this respect as to the tasks and the training and the capabilities that you have, particularly in the context of the very significant use of the national guard overseas.

General BLUM. Well, Congressman, if I correctly understand your question, it is a question of balance, and we can do both. We can defend the homeland both here at home and defend the homeland in depth abroad, and that is the way we prefer to do it. And we all said that. The Department of Defense would prefer to defend our homeland as far in depth as possible, as far as away from our shores as possible, but that is not always possible, and we have to be ready for the unscheduled home game. And I think that is national guard business, number one

If you look at the Army's chart—again, this is not my chart—they recognize the tip of the spear in the warfight on the right side to be the joint and expeditionary overseas part of the fight, and that is largely done in primacy there. It is in our active component and makes sense.

But they also recognize that in the homeland defense responsibilities—and these colors are not coincidental; they are designed to marry up with one another—and the homeland defense to support the homeland security role, the Army sees its Army National Guard as its prime element to respond in that.

For all the reasons that—the right reasons that Secretary McHale just outlined—in fact, we are already prepositioned. We are forward deployed. We have the shortest response time and we have the greatest latitude to respond, and the conditions of response go from everything—from State active duty to Title 32, which is federally funded under State control, to being federalized and put in a Title 10 status to do what the Secretary of Defense or the President wants us to protect.

It is interesting to know that critical infrastructure is in the eye of the beholder. Frankly, DOD has its critical infrastructure list, the Department of Defense does. It is also interesting to note that

the bulk of that is in the civil sector. Even though it is critical to the Department of Defense, it is owned and operated by a civilian sector, and that is quite important when we are dealing with places that exist in the United States and are under the Constitution of our great land.

So the national guard, to me, is the perfect, ideal force to, in fact, have that responsibility. It should be resourced and equipped and enabled to do that with the widest possible latitude because none of us can predict the exact circumstances that will be called out to actually do this. So we ought not paint ourselves in a box with very narrow definitions of how we could respond.

Mr. SAXTON. Let me ask you this. In your circle, we have 50 percent in red, 25 percent in yellow, getting ready to go to war, being trained to get ready to go to war; and the green guys—the green folks are deployed. Now, the skill sets that you develop in the yellow quarter are skill sets that you need to fight in a war, right?

General BLUM. Yes, sir.

Mr. SAXTON. So then they are deployed for a period of time, and then they flow back into the 50 percent?

General BLUM. Yes, sir.

Mr. SAXTON. Are the skill sets and the training that they received in their activities overseas, is there a refitting that is necessary in terms of skill sets when they come back home to take part in the national——

General BLUM. In some cases, yes. In most cases, no. The exact same capabilities and skill sets that are required by General Abizaid today, in stability and support operations in Iraq and stability and support operations in Afghanistan, are precisely the same capabilities that would be required by the governor of homeland defense: command, control, communications, intelligence, surveillance, reconnaissance, logistics, maintenance, aviation, engineering, medical, general security, general purpose security forces, transportation. All of these things are needed for the warfight.

And that is the beauty of the national guard. It can go either way. It can go to either side of that chart. It is equally adaptable to the overseas warfight as it is to the homeland defense game here. That is the national treasure of this organization and is why we are worth more on the defense dollar, frankly, than some of our active duty counterparts in certain circumstances, because they can flow either way and they have the ability to respond quickly and not be impeded by some of the statutory or legal restrictions that would be applied to Title 10 forces.

Mr. SAXTON. The force structure of the guard in terms of the activities that we take part in and train for have changed. The best example of that change, or one of the examples of that change that comes to my mind, is the shift of people out of artillery units and artillery training to MP types of activities.

Could you talk for a minute about that change and other changes similar to that that may have taken place?

General BLUM. Absolutely. In my opening statement I told you, sir, we needed to divest from capabilities that were no longer relevant for current operations and will certainly not be anticipated to be needed for future operations, and we needed to reinvest those citizen soldiers and reclassify them into new skill sets that will be

more appropriate for homeland defense missions, counterterrorist mission, response to WMD events and what the combat at that particular time, commander's capabilities, would be required by any other combatant commander to include General Eberhart at United States Northern Command or Admiral Fargo at Pacific Command as they relate to homeland defense operations.

I feel very adamant that those same skill sets—after the initial takedown by force or initial entry operations, we immediately go into stability and support operations, as we have all seen; and those same capabilities are exactly the same skill sets you need for homeland defense—security forces with high mobility, good communications, good ability to collaborate; in a joint environment, that means with other service members plus interagencies, plus intergovernmental responses and in many, many cases to include our own Nation, homeland defense will be a multinational effort. A lot of people do not realize the contribution that NATO and Canada made post 9/11 to our ability to maintain air caps over this country.

Secretary McHALE. If I can just add, the national guard's homeland defense activities, as they are currently employed and as we envision they will be employed in the future, can be quickly summarized.

First and foremost, we could not execute operation Noble Eagle, the defense of our airspace, the daily flying of air caps, without the complete, seamless, wholly effective integration of the Air Force Reserve and, most especially, the Air Guard, into our Total Force air capability. We are likely flying air caps today over some of your hometowns, and it is more likely than not that those air caps are being flown by Air Guard personnel.

And so the defense of our airspace is and will continue to be an extremely important assignment of the national guard.

With regard to land missions, we are looking primarily at the CSTs, those 22-person teams. We are going to have 55 of them. That initial CST response capability will be vital following a domestic WMD attack. General Blum is leading the transformation effort, truly historic within the national guard to make sure that the capabilities of the national guard originally constructed in the 20th century remain relevant to the 21st century asymmetric terrorist threat. So we are talking about chemical, biological response capabilities. We are finally talking about the integration of guard capabilities into our capacity to respond to multiple, simultaneous WMD attacks.

During Operation Iraqi Freedom, JTF civil support, which was our Nation's high-end response capability for a domestic WMD attack, included a very large percentage of men and women from the guard and reserve.

And finally, if we are to have, as in my judgment we must have, the ability to respond to multiple, simultaneous WMD attacks, for some of the later occurring attacks, it will be necessary to incorporate Reserve component capabilities into the task organization.

And so we are now looking at the kind of training, the kind of military occupational specialty (MOS) requirements, the mission requirements, that will allow us to draw quickly and effectively from the reserve component if our enemies hit us at multiple loca-

tions simultaneously, using weapons of mass destruction. Our ability to respond will be based in large part upon well-trained members of the reserve, most especially the guard.

Mr. SAXTON. Thank you.

Mrs. Davis.

Ms. DAVIS OF CALIFORNIA. Thank you very much, Mr. Chairman. Thank you to all of you for being here.

I wanted to mention before I asked a few questions just my experience with National Defense University and some of the simulation exercises that we have had—I think I have done four now—and I just would, on the record, want to encourage members to do that, because one of the issues that we deal with are simultaneous events that are occurring. There are a lot of issues that are raised during that. Certainly the education of our communities is very, very important, and obviously, the education of the Members of Congress and the role that they play.

I think one of the other issues that sometimes has been hard for us to get a really good handle on actually is the role of the Department of Defense in relation to homeland security. And so I think that—we continue to have a representative from NORTHCOM there most of the time, but it is very, very important. And I know it takes time to develop those exercises and certainly time on the part of members to do them, but I would suggest that we continue that and that we even, you know, ramp up the complexity of those exercises. They really have been helpful.

I wanted to ask a few things, and I am sorry that I missed some of the earlier testimony. We have several subcommittees going on at the same time this afternoon. But in your opinion—and I guess for all of you—where are we most out of alignment in trying to bring about the integration of DOD, Homeland Security and the other agencies? What keeps you up at night when you think about how well or how far we are from being able to create that real integration?

Secretary MCHALE. To give a detailed answer to your question, we would have to go into a secure setting, and it would be inappropriate for me to really tell you what keeps me awake at night. There are scenarios that keep me awake at night and have my focused attention the following morning, but to discuss those in any kind of detail, for reasons that are obvious, it would be inappropriate.

We have challenges with regard to bioterrorism. I think we have issues related—issues that have to be resolved related to appropriate immunization, appropriate prepositioning of stockpiles of antibiotics following a bioterrorism attack. We have very substantial challenges related to decontamination. If the area affected by the enemy attack produces a very large hot zone, it is conceivable that we would have large geographic areas subject to at least partial contamination in the event of some foreseeable scenarios.

Beyond that, I think the relationship between the Department of Defense and other consequence management activities and agencies is a good one and an effective one, largely because we have wisely chosen to build upon preexisting relationships. For many, many years we had established statutory authority under the Stafford Act to provide assistance to FEMA following natural disasters.

We provide similar assistance to other agencies when DOD skills and manpower may be required to meet a mission requirement that goes beyond the capability of the lead Federal civilian agency.

What we have done now is, we have taken those relationships, those statutory authorities, authorities that have been exercised in the real world many times during hurricanes and floods and other natural disasters, and we have ramped up the foreseeable level of response to include weapons of mass destruction. But the relationships, the partnerships, the methods of communication, while they are much stronger now, reflecting a much more serious threat of terrorist activity, remain at their core the kinds of relationships that have been used effectively, for instance, between FEMA and DOD over many decades.

Last year alone we had, I think, 75 requests for assistance from civilian agencies for military support. We met and we approved almost all of those requests, and that involved everything from the Shuttle disaster—we used five CSTs, for instance, in responding to the Columbia's tragedy. We were deeply involved in the response to Isabel. We provided firefighters to the National Interagency Fire Center, NIFC, for fires that were taking place in Montana and, of course, the very large fires in southern California.

And so we have these kinds of relationships, and we have now built upon them in a terrorist environment, but the familiarity of those relationships has been very helpful.

Ms. DAVIS OF CALIFORNIA. And please, I don't know if you would like to respond.

General BLUM. The only thing I would like to add to that, what I would consider an outstanding answer, but the only thing I could add to that, that might help for clarity, is that you have to keep in mind that the uniformed response, the Department of Defense response, nearly always will be in support of some lead Federal agency outside of DOD.

We don't want our government run by the military in almost any circumstance. So nearly all of the time, in almost every event, no matter how many would occur simultaneously, the military, the DOD assets would respond in support of some designated lead Federal agency. If it doesn't escalate to a Federal event, it would be the same answer, except it would be the national guard responding in support of some lead State government agency.

General LOVE. Congresswoman, the only thing I would add is that in your preface to your question, you identified the exercising that is fundamental to our training and ability to respond, and not only do we in U.S. Northern Command feel so strongly that that is one of the most important ingredients in our capability, not only to include the Department of Defense, but all of the agencies from the local to the State to the Federal agencies, but one of the things we are working hardest on at the moment is to attempt to understand how best to share the lessons learned from those exercises with the balance of the community that may be engaged in responding. And I think that is one of our greatest challenges, perhaps, among the most important.

Ms. DAVIS OF CALIFORNIA. Thank you.

Mr. Chairman, if I may, just one or two additional comments.

You mentioned other disasters, and we are still going through the process in California. I happen to serve on the blue ribbon commission that was established by the governor to look at those issues, and there is great controversy, of course, in terms of the response. And we are trying to really take an honest look at that and see what could have happened, what should have happened.

Obviously, the public was outraged, in fact, that we weren't able to mobilize the military as quickly as we wanted to or as people thought could have been helpful; and there is a lot behind that in terms of whether they had the capability, had the training, et cetera. But it is an issue that is very important to the community, and so we are trying to continue to work through that, and in fact—I mean, there are many things that happened that were very, very positive, but there was a real disconnect in the media as well as, quite frankly, among the Members of Congress in terms of what really occurred. And so I just wanted to let you know that we are continuing to work on that issue.

General Blum, you look like you wanted to respond.

General BLUM. I will defer to the Secretary first, but I have an answer I would like to share with you.

Ms. DAVIS OF CALIFORNIA. Maybe I will just continue for a second and then, please respond.

And one of the issues that I heard from the Air National Guard, from being part of that commission, is that we train the Air National Guard—correct me if I am mistaken in this—that fire fighting is not embedded within their mission, and there is an interest in seeing that that is done. And perhaps that is a good idea, maybe it is a bad idea, but it is something that has been expressed.

The other thing that I would just want to add is that in working with the industries within San Diego—and I hope it is better today; I think it is—a number of industries have had positive responses with DARPA, but they have had very negative responses when it comes to Homeland Security. And the response, the access, the—well, generally, it is the response—the inability to understand the process that they need to go through in order to bring their bells and whistles to the attention of the folks that need to hear about them. And in many cases, having visited some of the companies and seeing some of their technology, you know, I would hope that at least someone has a chance to take a look at them.

It seems to me that there has been a lot of difficulty in getting through that. So I would just, if I may, suggest that I think it is—I hope it is better. It has taken some time for the Department, obviously, to be up an running, but maybe there is something there that could be helpful, because I think that we are all interested in providing, contributing and——

Secretary MCHALE. Let me answer your questions in reverse order, starting with the issue of—the opportunity for commercial contractors to contribute to homeland security. The lead in that area, I am sure as you are aware, has been assigned to the Department of Homeland Security, not to the Department of Defense, but we do have an important role to play. The National Defense Organization Act, when it created my office in section—I think it is section 1401—assigned to my office, and the Secretary has assigned

to me personally, the responsibility to migrate dual-use technologies from DOD out to first responders.

So, for instance, if we develop better protective equipment in a contaminated environment, primarily for use in an overseas warfighting environment, but which can be used with equal utility by first responders, we have a statutory duty now in DOD to migrate that capability over to first responders. And preliminarily, the way in which we are going to do that, at least the concept, is that we will work with Under Secretary McQueary, the Under Secretary For Technology at DHS, to bring to his attention and then DHS, in turn, will bring to the attention of first responders, the improved technology.

One way in which your constituents, your contractors, can become engaged in that process is through the technical support working group with TSWG. It sounds very bureaucratic. It isn't. There is a Web site that is available. It is a DOD-led program. It is specifically designed to expedite the development of technology related to homeland security and homeland defense. I think there are something like 85 agencies that participate in TSWG to include now the Department of Homeland Security.

I was up in Rhode Island last year, and I talked about TSWG when I was up there. It gets very high marks for efficiency and responsiveness from the private sector; and so for those contractors who approach you, Congresswoman, I would urge you to bring to their attention TSWG, because I think they will be pleased by the lack of red tape and the tangible support for their ability to engage in homeland security technology efforts.

The preliminary issue you raised relates to the challenge of ensuring that military forces will be available as the ultimate safety net for our country's security without transforming those military forces into first responders.

Our Founders made a conscious choice not to militarize our Nation, and they were acutely sensitive to the performance of civilian responsibilities by men in uniform. They felt—in Federalist 8 and in other documents they wrote extensively about the dangers associated with an excessive domestic reliance on military capabilities; and so we in the Department of Defense see ourselves as that ultimate safety net. We are there for the Nation. We will respond immediately to the order of the President or the direction of the Secretary of Defense; but it is a conscious, principled decision to provide an echeloned response to a major disaster where we first rely on civilian officials if they are overwhelmed, or if we have a unique capability, we move on to military authorities, most especially the national guard.

And then, ultimately, if the challenge is so great that the civilian authorities and the guard are overwhelmed, we do have Title 10 capabilities and Title 10 legal authorities to deploy. But that ought to be the final step in an effective response, not the first step.

Ms. DAVIS OF CALIFORNIA. I appreciate that, and I think that—well, I think a lot of people felt that it got to the point, that we really needed outside resources in that way and that we had a catastrophe on our hands. I think the other concern that people had is that it reminded people of how easy it would be to have a true

homeland security crisis on our hands by similar devices. So we need to be trained for that.

Secretary MCHALE. In the case of the wildfires, as I recall—and your blue ribbon panel will review this more thoroughly than we can, seated here at this table—but I think there were some delays in requesting air support. I think we had six air tankers that were available for fire fighting, and in fact, we authorized their use almost as soon as they were requested.

But there was a delay in making the request, and as I recall, we, in fact, had a battalion of Marines out of the First Marine Division poised to engage in fire fighting at the time that the fire came under control. Previously we had used a battalion of soldiers in Montana in a similar operation where they were, in fact, put on the lines and used by fire—as we do each year, but in this case there were some delays in making the request for assistance. The request for assistance was promptly reviewed and approved in this case, and just as Marines were about to go out and begin the fire fighting, the fire came under control.

Ms. DAVIS OF CALIFORNIA. Thank you. I appreciate that.

Thank you very much, Mr. Chairman, for allowing us to have that conversation. I appreciate it very much. And, again, thank you for all that you all do.

Mr. SAXTON. Mr. Secretary, as you stated at the outset, this is a new set of problems that we have to deal with, and I think we have come a long way, but in my travels I still see things that raise questions in my mind. And one of the kind of overarching issues is that there is a critical infrastructure that we need to protect because of the infrastructure, but also because of other things that can happen if that infrastructure is attacked.

Sometimes that infrastructure is held in the private sector and, in some cases, the private sector is responsible for security. In other cases, the private sector, which is there to make a profit, is in charge of security, and the State works as kind of a partner; and there is a—there seems to me to be a built-in disincentive in that example, because the private sector doesn't want to spend money on security and maybe hopes an event does not occur. We require that they provide certain types of security which, frankly, in some cases, has not impressed me. And the State likewise has a disincentive, because if the State decides to provide security to back up the private security, it has to pay for it.

So how much of a problem is this and do we need to look at some corrective measures—they are through your office or through the Congress?

Secretary MCHALE. Most of the challenge that you have just described falls beyond the legal authority of the Department of Defense and, in fact, has been expressly assigned by statute to the Department of Homeland Security.

So when we are talking about private-sector critical infrastructure, the lead to develop a national plan for the protection of that private infrastructure has been assigned to the Department of Homeland Security in the Homeland Security Act. However, there is a big piece of it that has been assigned to the Department of Defense.

Under the National Strategy For Critical Infrastructure Protection, Physical Protection, and under Homeland Security Presidential Directive No. 7, the responsibility for coordinating the defense or the protection of the defense industrial base has been assigned to the Department of Defense. And so we in DOD, having recently acquired—it was in December—having recently acquired that responsibility to coordinate the protection of privately owned infrastructure within the defense industrial base are now developing analytical tools and a process to make that protection a reality.

And one of the things, Congressman, that I personally have thought about is the need to review DLA, Defense Logistics Agency, contracts with private contractors to include stringent security requirements as part of the contractual obligation taken on by a defense contractor when that contractor chooses to do business with the Department of Defense.

The first thing we can do is write into the contract that certain essential security measures will be carried out by the contractor himself. Then, beyond that, we need to coordinate with local and State law enforcement and the FBI for the protection of that defense industrial base. And then I believe an emerging role, one that I emphasized earlier, is for the national guard to become engaged in the protection of the defense industrial base.

If that happens, we come back to Congressman Gibbons'question. If the national guard, let's say in Title 32 status, is deployed to protect a defense contractor in San Diego, who should pay for the cost of that deployment? Should the State of California pay for that cost, or because the guard is being used as part of a coordinated national security plan, should that cost be borne by the Federal Government? I am not prepared to answer that, but that is a policy issue for open determination.

Last, we do have soldiers and Marines. We didn't have them prepared for this mission 2 years ago, but we now have soldiers and Marines in significant numbers ready to deploy and physically defend in a warfighting mission critical nodes of vulnerability within our own country, if the contractor himself can't protect the site, if law enforcement and the guard are insufficient.

Now, we have not yet deployed in a real-world requirement those forces, but they have been available for deployment for quite some time now, and their availability makes us a stronger nation.

Mr. SAXTON. General Love, we have had several points of discussion here today about the relationship between the Federal Government and the State government and private contractors in this last question, but DOD's report to Congress on the Department's role in supporting homeland security describes command and control of national guard assets, entitled Incident Response, in rather vague terms.

For example, the report suggests that the Joint Staff and Northern Command must have, quote, "insight into guard operations under the control of the governor." This appears to me to be a work-around to avoid asking for a change in Posse Comitatus. If these command arrangements work, are they satisfactory? And how does the link with the Department of Homeland Security actually work?

General LOVE. I believe, sir, the answer to your question may be in two arenas. Your use of the word "insight" is one that concerns us a great deal, in that in order to be effective in providing additional Federal resources to save lives and property, the commander of Northern Command must have as complete and clear an understanding of what is happening as he possibly can. And that is the term in which I—or the context in which I would use the word "insight."

As General Blum identified, one of the lead proposals that is underway now within the national guard is the stand-up of the standing Joint State Headquarters, with its ability to understand the territory, its connection with the State Office of Emergency Preparedness and its connection with the sheriff, the police and fire departments.

And of greatest importance is its connectivity to U.S. Northern Command, and that is the arena in which the Joint CONUS Communication Support Enterprise finds its value, building situational awareness and a common operating picture. That is an effort that we are engaged in at the moment and is not yet complete.

In the command and control area, we have historically been obligated because of the constitutional separation between the sovereigns, the governor and the President, to use what we have called indoctrined coordinating authority, wherein a commander of Federal forces works hand in hand with the commander of State forces; and that has historically not necessarily provided a unity of purpose.

Thanks to the National Defense Authorization Act of 2004, you, the Congress, have authorized for the first time in history the opportunity for a national guard officer, when he or she becomes federalized, with the concurrence of the President and the governor of the affected State to retain his or her authority to act as a national guard officer. And what that means is, it presents us for the first time an opportunity to have command and control resident in a single individual of both capabilities, a State capability as well as a Federal capability. This is something the Northern Command is looking at in terms of building a template that, should a crisis arise in a State where the commander of NORTHCOM believes that that unity of purpose can best be achieved through a single commander, we may exercise that authority.

Mr. SAXTON. So here is what concerns me. The term "insight," if I ask everyone in this room to write down their definition of insight, there are probably 50 people in the room and we would get 50 different definitions of "insight." so what may be—what may have been considered insight by whoever wrote this language may be a very valid assumption of what insight is or a very valid definition of what insight is. Five years from now insight may mean a completely different thing

Secretary MCHALE. Right now, Congressman, the word "insight" is no longer satisfactory. I signed that report, and the report was in the works from the earliest days of NORTHCOM's existence and the creation of my office. Insight does not begin to capture how strong a relationship must exist between NORTHCOM and the national guard.

Now, constitutionally, we can't place and would not want to place the combatant commander in actual command authority over the guard in State status, and so in military terms what we have to achieve is unity of effort without unity of command. That is not easy to do, but I believe we can do it.

A year ago General Blum was not in his current position. A year ago he was the Chief of Staff at NORTHCOM. He is now the Chief of the Guard Bureau. The movement from one billet to another was not an accident; it was part of that linkage that we recognized had to exist between NORTHCOM and the Guard Bureau. I want to emphasize with the——

Mr. SAXTON. It was a successful move, by the way.

Secretary MCHALE. It was a successful move.

The General promptly proposed, based on his past experience, a joint headquarters at the State level. Now, that sounds very bureaucratic, but what it really means is our Title 10 Reserve forces—Army, Navy, Air Force, Marines—will come together for the first time with the national guard in a joint headquarters at the State level. That is historic.

And last, if we are to achieve unity of effort without unity of command, we have to do exactly what Congresswoman Davis said we should do. We have to train very realistically, very frequently with extremely challenging scenarios, where not only the guard is incorporated into the NORTHCOM scenario. We have to include first responders, local, State and Federal agencies; we have to work side by side with DHS and FEMA.

And I am pleased to tell you going far beyond the passive term "insight," we are now training very seriously in demanding scenarios that involve radiological devices, nuclear devices, sophisticated chemical and biological attacks, where the national guard is very much part of a common concept of operations, even though the guard is not technically under the command of U.S. Northern Command.

Mr. SAXTON. Thank you.

Do any of my colleagues have further questions? We have been here for just a few minutes shy of 2 hours.

Mr. BARTLETT. Thank you very much.

Mr. SAXTON. You don't have a question?

Mr. BARTLETT. No, sir.

Mr. SAXTON. I have one final question.

We are your partners, and we want to provide whatever resources we reasonably can to support your effort. What do you need? Or do you need anything?

Secretary MCHALE. I strongly support the President's budget. That is both a—I mean that very seriously. When the budget request comes over from the executive branch, we in the Department of Defense, and we particularly in Homeland Defense, have an opportunity to shape that request; and I believe that if you meet the requirements of the President's budget, you will go a long way toward funding a robust homeland defense for our Nation.

Mr. SAXTON. I might just unofficially urge you to reach out to whoever it seems appropriate to reach out to on that point. Some of us got some bare knuckles this morning trying to make that

point, and we strongly support—the members of this committee strongly support the President's budget, but we are not home yet.

So thank you very much for the job you do. Thanks for being so patient with us this afternoon and staying for 2 hours. We appreciate that very much, and we look forward to working with you in the future. And keep up the great work.

[Whereupon, at 4:57 p.m., the subcommittee was adjourned.]

APPENDIX

MARCH 4, 2004

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 4, 2004

Statement of Chairman Jim Saxton
Subcommittee on Terrorism, Unconventional Threats and Capabilities

Subcommittee Hearing on Department of Defense Responsibilities in Homeland Defense and Homeland Security Missions

March 4, 2004

The Subcommittee on Terrorism, Unconventional Threats and Capabilities meets this afternoon to follow up on the topic of this subcommittee's very first hearing almost one year ago—an overview of the role of the Department of Defense in homeland security and homeland defense missions. Since that initial subcommittee hearing on March 13th of last year, our distinguished ranking member, Marty Meehan of Massachusetts, other members of the subcommittee and I have participated in a great many hearings, briefings, and meetings covering a wide variety of subjects. Some involved large policy issues, and others arcane technical issues, but all were important in their own way. And we haven't confined ourselves to Washington, but pursued an aggressive program to get to the field and see for ourselves. We've worked hard, learned a lot, and hope we have begun to

contribute in some measure to making America and the rest of the world safer.

While we still have much to learn, it's time to revisit an issue we touched on last year when the responsible organizations were in their infancy. Now that the Office of the Assistant Secretary of Defense for Homeland Security, Northern Command, and the Department of Homeland Security have been in operation for the more than a year, it is a good time to check progress and see if there are issues that Congress needs to address. As I stated in that initial hearing, Secretary McHale's office, Northern Command, and the use of the national guard in homeland security and homeland defense missions are part of this subcommittee's natural jurisdiction, and we will take a continuing interest in your progress.

The subcommittee was interested to receive two recent reports published by the Department of Defense relevant to today's hearing. First is a report to Congress issued in September 2003, and the second is a Defense Science Board report of November 2003. I was gratified to note that neither report glossed over the many challenges that face the Department and the nation. Given our experience as a new subcommittee, I understand how it is that

initially new organizations identify problems and issues more rapidly than they can be solved. As the Defense Science Board report points out, there are many gaps that need to be filled and many new organizational relationships that must be exercised and refined.

There's one issue that neither report highlighted that concerns me. While I am sensitive to and sympathetic to the long standing restrictions on federal troops performing domestic law enforcement missions, I have to say that I am less than comfortable with the command and control mechanisms described in the September 2003 report to Congress. In describing how Northern Command and the Joint Staff would watch over national guard troops on title 32 status in an ongoing operation, the report states that Northern Command and the Joint Staff will have "insight" into national guard operations. Not exactly tight control, but in conformance with the law. I'm not saying that change is needed, but I am seeking forthright statements on the record that these command relationships will work effectively.

I also note that the reserve forces of the United States are undergoing force structure changes to better accommodate the demands of mobilization. If the Defense Science Board

recommendations are followed, and I believe there is some indication they will be, the national guard will have a greater role to play in homeland defense and homeland security missions. I trust that these important activities have been accounted for in the ongoing rebalancing of reserve forces.

As I said from the outset, there is much to discuss. Let me turn now to my friend, James Langevin of Rhode Island, for any remarks he would care to make.

Statement by

Honorable Paul McHale,

Assistant Secretary of Defense for Homeland Defense

Before the 108th Congress

Subcommittee on Terrorism, Unconventional Threats and Capabilities

Committee on Armed Services

United States House of Representatives

March 4, 2004

Introduction

Chairman Saxton, Congressman Meehan, distinguished members of this Subcommittee: Thank you for inviting me back to address the critical subject of our nation's security. I appreciate the opportunity to return today to update you on our progress. When I appeared before this Subcommittee a year ago, new Department of Defense (DoD) organizational structures for homeland defense were still under development. With a continuing sense of urgency and focus, DoD has implemented substantial improvements in homeland defense capabilities over the past year, increasing the safety of the nation. At the same time, there is no reason for complacency. We fully recognize that significant challenges lie ahead.

The focus of DoD's efforts to combat terrorism is on bringing the fight to the terrorists abroad through the prosecution of the global war on terrorism. Thus, our first line of defense is abroad -- to confront the enemy where he lives, trains, plans, and recruits, as we are doing today in Afghanistan and Iraq. Since my last appearance, the Global War on Terror has achieved many more successes. U.S. forces toppled Saddam Hussein's vicious regime in Iraq, freeing its innocent population from the grip of tyranny. We have captured or killed nearly two-thirds of al-Qaeda's known senior operatives. We have disrupted terrorist cells throughout the world, likely preventing planned attacks and disrupting the planning of others. The second line of defense also lies beyond the borders of the nation -- the air and maritime avenues of approach – where we will engage terrorists before they reach our borders. Inside our borders, the domestic law enforcement community is responsible for countering terrorist threats; and the Department of Defense stands ready to provide assets and capabilities in support of civil authorities, consistent with U.S. law.

DoD's Role in the Security of Our Nation

As you know, following the tragic events of 9/11, at the direction of the President and with Congressional support, DoD moved quickly to establish new organizations focused on homeland defense and civil support: U.S. Northern Command (NORTHCOM) and the Office of the Assistant Secretary of Defense for Homeland Defense (ASD(HD)).

At the request of the Secretary of Defense, the Office of the Assistant Secretary of Defense for Homeland Defense was established by Congress in the Bob Stump National Defense Authorization Act for Fiscal Year 2003. I am honored to have been nominated by the President and confirmed by the Senate to serve as the first Assistant Secretary of Defense for Homeland Defense. My office was established in recognition of the need to have a focal point to assist the Secretary improve policy and provide guidance to combatant commanders regarding air, ground, and maritime defense of U.S. territory and the conduct of support to civilian authorities. As provided in the establishing statutory language, I provide overall supervision of the homeland defense activities of DoD.

You will recall that on October 1, 2002, DoD activated NORTHCOM, headquartered in Colorado Springs, Colorado. This is the first combatant command with a primary mission to defend the land, sea, and air approaches to the United States. NORTHCOM conducts operations within its assigned area of responsibility to deter, prevent, and defeat threats and aggression aimed at the United States, its territories, and interests. Accordingly, as directed by the President or Secretary of Defense, NORTHCOM would direct military operations within its area of responsibility, including combat operations. In addition, when directed by the President or Secretary of Defense, NORTHCOM would also provide military assistance to civil authorities to mitigate the results of disasters and catastrophes, including those resulting from a WMD attack.

NORTHCOM's area of responsibility includes the continental United States, Alaska, Canada, Mexico, and the surrounding water out to approximately 500 nautical miles. The defense of Hawaii and U.S. territories and possessions in the Pacific remains the responsibility of U.S. Pacific Command. The commander of NORTHCOM is also the commander of the bi-national U.S.-Canada North American Aerospace Defense Command (NORAD). I am pleased to report that NORTHCOM achieved full operational capability on September 11, 2003 and is fully able to conduct missions assigned to the command in the Unified Command Plan.

Air domain. NORAD guards, patrols, and monitors the skies over Canada and the United States. Each and every day the men and women of the United States Air Force, United States Air Force Reserve, and the Air National Guard secure the skies over major metropolitan areas, historic monuments, and our nation's critical infrastructure. Since September 11, 2001, these dedicated professionals have executed over 30,000 air defense sorties and responded to over 1700 requests from the Federal Aviation Administration to intercept potential air threats.

Maritime domain. Similarly, the U.S. Navy mans the sea approaches to the United States and works with the U.S. Coast Guard to patrol international waters and our territorial seas. On a daily basis, the U.S. Navy vigilantly monitors the blue water approaches to our nation's territorial seas, operating under new and expanded authority to interdict vessels potentially bearing terrorists or their weapons before they reach our shores. Further, under Operation NOBLE EAGLE, naval maritime surveillance and engagement forces are designated for transfer to NORTHCOM command and control when directed by the Secretary of Defense.

Land domain. The Homeland Security Act of 2002 assigns the Secretary of Homeland Security the responsibility for the security of the nation's borders. That responsibility includes preventing terrorists and instruments of terrorism from penetrating our borders, protecting our ports of entry, immigration enforcement, and ensuring the

speedy, orderly, and efficient flow of lawful traffic and commerce. DoD's role in that border security mission is to provide support to civil authorities, principally the Department of Homeland Security (DHS), when appropriate. To that end, DoD is prepared to respond swiftly when required. DoD has established and maintains Quick Reaction Forces and Rapid Reaction Forces, which, when deployed, will operate under NORTHCOM command and control. These highly-trained U.S. Army and Marine Corps personnel are postured to respond to the full range of potential threats to the United States. Additionally, when authorized by the Secretary of Defense, in the case of a WMD attack, Joint Task Force Civil Support headquartered in Norfolk, Virginia, Joint Task Force Consequence Management East headquartered at Fort Gillem, Georgia, or Joint Task Force Consequence Management West headquartered at Fort Sam Houston, Texas, under the command and control of NORTHCOM, would provide consequence management support to civil authorities.

Role of DoD and Other Agency Exercises

DoD is committed to maintaining the readiness of military forces to execute the full spectrum of homeland defense operations and to support civil authorities, when needed. To this end, DoD has hosted or participated in our own exercises and those sponsored by other government entities. Over the last year, these include: Unified Defense (February 2003); TOPOFF 2 (May 2003); Determined Promise (August 2003); Livewire (October 2003); Scarlet Cloud (November 2003); and Unified Defense (February 2004). These exercises addressed a range of potential threats to the United States, from cyber attacks to bioterror attacks, and from radiological attacks to a nuclear detonation. The exercises support the DHS National Homeland Security Exercise Program established by the December 2003 Homeland Security Presidential Directive-8 (HSPD-8) on National Preparedness. Homeland security and homeland defense exercises are critical in identifying gaps and potential weaknesses within each agency and across agencies in responding to terrorist attacks, including multiple, simultaneous challenges.

DoD Support of Critical Infrastructure Protection

Public Law 107-296 (the Homeland Security Act of 2002) assigned DHS the responsibility to develop a comprehensive national plan to protect our nation's critical infrastructure and key assets. The National Strategy to Secure Cyberspace (February 2003) and the National Strategy for the Physical Protection of Critical Infrastructure and Key Assets (February 2003), as well as HSPD-7 on Critical Infrastructure Identification, Prioritization, and Protection, (December 2003) designate DoD as the Sector Specific Agency for the Defense Industrial Base sector. This designation recognizes DoD's important role in the protection of the nation's critical infrastructure that sustain our capability to defend our nation and fight its wars. In this capacity, DoD must work closely with private sector owners of critical defense infrastructure to deter, mitigate, or neutralize terrorist attacks in order to sustain military operations.

In September 2003, I was assigned the responsibility for Defense Critical Infrastructure Protection by the Secretary of Defense. Since then, we have consolidated Critical Infrastructure Protection (CIP) funding within the Office Secretary of Defense into a single program, managed by the newly-established Defense Program Office for Mission Assurance. Under my oversight, this office conducts focused research and development using a systems approach for CIP activities supporting DoD missions. We have also taken steps to protect critical defense installations and facilities from chemical, biological, radiological, and nuclear threats. Pentagon efforts are helping to develop DoD-wide installation protection standards and requirements, which we will apply at 200 other key installations over the next few years.

Intelligence and Information Sharing

DoD works closely with the constituent elements of the intelligence community to maintain maximum awareness of potential attacks against and emerging threats to the United States. My office engages actively with the Under Secretary of Defense for

Intelligence (USD(I)), established in 2003 by Public Law 107-314, on all homeland defense intelligence matters. USDI is charged with ensuring that the senior DoD leadership receives the warning, actionable intelligence, and counter-intelligence support needed to pursue all of the objectives of the updated defense strategy, including defense of the homeland. USD(I) also provides a single point of contact for coordination of national and military intelligence activities with the Community Management Staff under the Director of Central Intelligence (DCI) and strengthens the relationship between the Secretary of Defense and the DCI.

With the assistance of my office, the Office of the Under Secretary of Defense for Intelligence, is working with DHS and other federal departments and agencies to fulfill the tasking set forth by Executive Order 13311, "Homeland Security Information Sharing," (July 2003) to establish procedures for the horizontal sharing of information between federal agencies and the vertical sharing of information with authorities at the state and local levels.

Additionally, DoD is a full partner in the Terrorist Threat Integration Center (TTIC), a multi-agency joint venture announced by the President in the January 2003 State of the Union address and launched in May 2003. TTIC integrates terrorist-threat related information, minimizing any seams between analysis of terrorism intelligence collected overseas and inside the United States, to form a comprehensive threat picture. On a daily basis, TTIC coordinates terrorist threat assessments with partner agencies, including DoD, DHS, the Federal Bureau of Investigation, the Central Intelligence Agency, and the Department of State.

DoD Relationship with the Department of Homeland Security

DoD focuses on and is responsible for homeland defense, which is the protection of United States territory, domestic population, and critical defense infrastructure *against external threats and aggression*. It also includes routine, steady-state activities designed

to deter aggressors and to prepare U.S. military forces for action if deterrence fails. DHS, on the other hand, focuses on homeland security, which is defined in the 2002 National Strategy for Homeland Security as "a concerted national effort to prevent *terrorist attacks within* the United States, reduce the vulnerability of the United States to terrorism, and minimize the damage and assist in the recovery from terrorist attacks."

In simpler terms, the Defense Department provides the military defense of our nation from all attacks that originate from abroad, while DHS protects the nation against, and prepares for, acts of terrorism. DoD is organized and prepared, however, at the direction of the President and the Secretary of Defense, to play a vital role in support of the DHS mission.

As the Secretary of Defense's principal representative to the DHS, I have worked hard to build upon on our excellent working relationships throughout the Department of Homeland Security. We have nearly completed a memorandum of agreement with DHS, under which DoD will continue to provide on a detail basis some sixty-four personnel to the Department of Homeland Security to fill critical specialties, principally in the areas of communications and intelligence. We have also established a 24/7 DoD presence in the DHS Homeland Security Operations Center with direct connectivity back to DoD for rapid response. Additionally, we established planning teams to assist the DHS Interagency Incident Management Group – a group of senior interagency officials focused on incident response. This year, we are also enhancing our partnership with DHS by establishing a DoD advisory and liaison office -- called the Homeland Defense Coordination Office -- within DHS headquarters.

In accordance with Section 1401 of Public Law 107-314, I serve as the "senior official of the Department of Defense to coordinate all Department of Defense efforts to identify, evaluate, deploy, and transfer to Federal, State, and local first responders technology items and equipment in support of homeland security." In that capacity, I work closely with the DHS Under Secretary for Science and Technology.

Recent examples of technology transfer initiatives include: information-sharing systems, such as the Disaster Management Interoperability Services; biometrics identification technologies; ground sensors and their application in border security; and unmanned aerial vehicle experimentation. Additionally, new Advaced Concept Technology Demonstration (ACTD) efforts are underway that have the potential to deliver capabilities supporting both DoD missions abroad and DHS missions at home. These include the High Altitude Airship, a prototype untethered platform that could provide wide area surveillance and communications capabilities, and the Air Transportable Cargo screening ACTD, designed to detect explosive threats in pallet cargo loads moving through military transportation systems.

Finally, DoD invests nearly $100 million yearly in the Technical Support Working Group (TSWG), a U.S. national forum that brings together over 85 federal agencies to identify, prioritize, and coordinate interagency and international research and development requirements for combating terrorism. The TSWG rapidly develops technologies and equipment to meet the high-priority needs of the combating terrorism community. These technologies typically are also applicable to first responders and other homeland security missions. DHS is now a partner in the TSWG.

Homeland Security Council

The President established the Office of Homeland Security (OHS) and the Homeland Security Council (HSC) on October 8, 2001 to develop and implement a comprehensive national strategy to secure the United States from terrorist threats. The Department of Defense coordinates with the Assistant to the President for Homeland Security and staff as appropriate. The Secretary of Defense is, along with the President, Vice President, Secretary of Homeland Security, the Attorney General, and other Cabinet officials, a member of the HSC. DoD worked closely with the OHS from October 2001 to March 2003, and continues to do so with its successor, the HSC staff.

As the Assistant Secretary of Defense for Homeland Defense, I am DoD's principal representative to the HSC staff and normally represent DoD at HSC principals and deputies committee meetings. My office represents DoD on the HSC's inter-agency policy coordination committees (PCCs) and subordinate working groups, with the participation of other DoD offices as appropriate. From personal experience, I can attest that the HSC has become an effective forum for interagency communication on homeland security and homeland defense matters, including evaluation of terrorist threats and the development of responses in a crisis environment. As one example, the HSC functioned effectively throughout the tense weeks of Code Orange alert during the December 2003 holiday season.

Defense Support to Civil Authorities

DoD has a long tradition of support to civil authorities, while maintaining its primary mission of fighting and winning the nation's wars. Since my last testimony, DoD has continued to lend necessary assistance to civil authorities when they were overwhelmed or faced with challenges necessitating the Department's unique capabilities. Last year we acted on 75 requests for assistance from more than 20 civilian agencies, including DHS, the Department of Justice, the Department of Health and Human Services, the Department of Transportation, the Department of State, the National Air and Space Administration, the U.S. Marshals Service, and the National Interagency Fire Center.

To provide several brief examples of civil support activities last year, DoD provided emergency support in natural disasters such as Hurricane Isabel in September 2003 and the October 2003 California wildfires. During the January 2004 ricin incident on Capitol Hill, NORTHCOM's Joint Force Headquarters-National Capitol Region, in its first operational use, provided command and control of U.S. Marine Corps Chemical-Biological Incident Response Force assistance to the U.S. Capitol Police.

Conclusion

Throughout our history, U.S. military forces – active duty and reserves -- have defended our nation against its enemies on land, at sea, and in the air, adapting continuously to engage threats to our nation.

Today we face a challenge that is equal to or greater than any we have ever faced before. We must cope not only with the threats produced by the proliferation of weapons of mass destruction and missile technology among nation-states, but also with threats posed by individual terrorists and terrorist organizations with global reach.

Throughout DoD we are transforming, increasing our capabilities for warfighting and homeland defense on a daily basis, while continuing a long tradition of support to civil authorities. Homeland defense and homeland security are featured on Secretary Rumsfeld's top priorities list for this year. We intend to develop a comprehensive Homeland Defense Strategy for the 21st century. This strategy will support the National Security Strategy, the National Strategy for Homeland Security, and the updated Defense Strategy. It will also provide the framework for pursuing operational capabilities to prepare for tomorrow's challenges.

Mr. Chairman, I commend you and the members of this subcommittee for your continued interest, efforts, and support in the Department's homeland defense mission. The citizens of this nation, its institutions, and our brave men and women in uniform have repeatedly demonstrated the patriotism, toughness, innovation, determination, and resiliency to defeat our enemies while retaining our freedoms. There is no doubt in my mind that those capabilities will be tested against this newest enemy threat – nor is there any doubt that we will prevail.

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RECORD VERSION

STATEMENT BY

LIEUTENANT GENERAL H STEVEN BLUM
CHIEF, NATIONAL GUARD BUREAU

BEFORE THE

SUBCOMMITTE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
COMMITTEE ON ARMED SERVICES
UNITES STATES HOUSE OF REPRESENTATIVES

ON THE DEPARTMENT OF DEFENSE ROLE IN HOMELAND SECURITY

SECOND SESSION, 108TH CONGRESS

MARCH 4, 2004

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
COMMITTEE ON ARMED SERVICES

UNCLASSIFIED

STATEMENT BY
LIEUTENANT GENERAL H STEVEN BLUM
CHIEF, NATIONAL GUARD BUREAU

Mr. Chairman and distinguished members of the Subcommittee, thank you for the opportunity to update you on our progress in transforming the National Guard for full-spectrum operations to include those here in the homeland. We remain fully committed to our proven role as an essential partner in the Total Force ready to deploy rapidly overseas to fight our nation's enemies, help her friends and accomplish the mission any time, any place.

Clearly, being dispersed throughout the nation and under the command and control of governors, the National Guard is uniquely suited for operational missions inside the US to help protect both the American people and our critical infrastructure. This includes physical and information as well as economic structures. The National Guard has the flexibility and potential to span the full spectrum of actions ranging from assessment of vulnerabilities to the fielding of reaction forces, as well as all of the attendant training and exercises to support such a capability.

In my testimony I would like to briefly outline four concepts under development at the National Guard Bureau which I believe will pay significant dividends to the security of the nation, here at home and abroad.

JOINT FORCE HEADQUARTERS (STATE)

On October 1, 2003, we consolidated 162 separate stovepipe Army and Air National Guard headquarters organizations in each state into 54 Joint Force Headquarters – creating a single standing joint force headquarters in each state for all Army and Air National Guard activities. The synergy of jointness provides the states with a unity of effort otherwise unavailable if the elements worked separately. In times of emergency, these standing Joint Force Headquarters will provide state Governors with rapid response and better integration of National Guard assistance coming from neighboring states through existing Emergency Management Assistance Compacts. Additionally, these organizations could provide a means for achieving unity of effort by reception and integration of any federal forces which the President might employ in an incident. These headquarters could also, themselves, be federalized. Finally, the this headquarters transformation will create efficiencies by consolidating the three separate existing headquarters in each state under one commander, using the manpower saved to fill shortages in lower-echelon units. The concept plans required to formally establish joint headquarters at the state level should be submitted within the next year.

MODULARITY AND THE NGCERFP

The Chief of Staff of the Army has directed a greater focus on increasing the modularity of our forces. One application of this idea we have applied to National Guard domestic operations is the concept of the National Guard CBRNE Enhanced Response Force Package (NGCERFP). This is a capabilities-based force package of existing National Guard units which can be employed along with a Civil Support Team for a more robust capability in response to a WMD incident.

Thanks to Congressional support there are currently 32 certified National Guard WMD Civil Support Teams. More are on the way. These 22-person teams are jointly manned by highly trained Army and Air National Guard specialists equipped with cutting edge technology, and able to detect and identify chemical, biological or radiological hazards and help facilitate follow-on actions.

Under the NGCERFP concept, a Civil Support Team would be augmented by existing medical, engineer and security forces from either the Air or Army National Guard bringing an enhanced capability to secure an incident area, conduct technical search and extraction, and to decontaminate, treat and evacuate casualties. We need create no new units. We need only to leverage the force structure we already have and work with the Services to consider modest adjustments in organization or equipment.

JOINT CONUS COMMUNICATION SUPPORT ENVIRONMENT

We are proposing to the Secretary of Defense this information infrastructure concept. It will capitalize on existing NGB computer network connectivity throughout the 54 states and territories. If implemented, such a structure could be an important link between the United States Northern Command, the United States Pacific Command, the Office of the Assistant Secretary of Defense for Homeland Defense and other federal and state stake holders. This concept is still under development and discussions are ongoing, but it is indicative of the new ideas we are exploring to meet state and federal requirements in the new homeland security environment.

REBALANCING AND FULL SPECTRUM AVAILABILITY

The battle lines between Homeland Security and Homeland Defense are indistinguishable at the state level. Governors count on the Guard to be the first military responder. Thus the National Guard must be able to support state requirements on a no-notice, immediate basis, and respond with the right capabilities.

Governors have told me that they want to ensure that they have sufficient forces and the right capabilities in their National Guard to meet the requirements of both the Federal warfight and a wide array of potential State missions.

Nationally, today, approximately 25% of the National Guard is called to duty as part of the global war on terrorism. As we meet here today, over 129,000 citizen soldiers and airmen are currently supporting the global war on terror. Some states, however, have had as much as 75% of their National Guard deployed at one time. Both Governors and Adjutants General have expressed concern about their ability to respond to state missions, Homeland Defense or support to homeland security operations when that much of a state's Guard is away.

We have developed a predictive deployment model with an end-state goal that ensures the force is managed to permit approximately 25% to be deployed to the warfight; with up to another 25% training to replace those already deployed. Our objective in this model is to attempt to make a minimum of 50% (and up to 75%) of the

Guard forces to remain in-state and available to the Governor for state missions, Homeland Defense, and support for Homeland Security operations.

For our Army Guard soldiers, our families, and our employers, this model establishes a goal of no more than one (1) potential deployment every five or six years, and for our Air Guard airmen, one shorter potential deployment every fifteen (15) months. This is important to maintaining a ready, reliable, and accessible National Guard. It allows us to ensure that we can sustain the National Guard for State or Federal missions now and in the future.

Beyond sheer numbers, the states have also made it clear that, to meet their emergency response requirements, they need to have certain key capabilities. These include: Joint Force Headquarters, Civil Support Team, Maintenance, Aviation, Engineer, Medical, Communications, Transportation, and Security forces.

We cannot deliver the predictive availability model or the ideal state-required capability mix today. Guard force structure is not properly balanced. It is not properly balanced in the states or among the states. Nor, is it properly balanced among the active, Guard and reserve.

As the National Guard Bureau works with both the Departments of the Army and Air Force to rebalance the active and reserve component mix, we will consult closely

with Adjutants General and be ever mindful of the states' need for certain capabilities as we work decisions about the stationing of units across the nation.

It is important to note that we do not foresee a reduction in the number of people in the Guard.

We do see a National Guard with enhanced capabilities to perform all of its missions. We see a Guard with ready and relevant forces. And, finally we see a force that is right for America, right for the States and loyal to the principles on which the Guard was founded.

CONCLUSION

We are transforming the National Guard in every domain -- the way we fight, the way we do business, and the way we work with others -- to be the National Guard America needs for tomorrow, for missions at home and abroad.

The Secretary of Defense has noted in previous congressional testimony that the National Guard's existing duty statuses – state active duty, Title 32 duty, and federal Title 10 duty – have all worked well in the past. He has challenged us to leverage these for the new security environment. We are doing precisely that through the development of concepts such as those outlined above.

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HOUSE ARMED SERVICES COMMITTEE,
SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

STATEMENT OF

MAJOR GENERAL JOHN A. "ANDY" LOVE, AIR NATIONAL GUARD

SPECIAL ASSISTANT TO THE COMBATANT COMMANDER

UNITED STATES NORTHERN COMMAND

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

4 MARCH 2004

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HOUSE ARMED SERVICES COMMITTEE,
SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

Chairman Saxton, Congressman Meehan and Members of the Subcommittee:

On behalf of Gen Eberhart, it is an honor to appear before this Committee and to represent the outstanding men and women of United States Northern Command (USNORTHCOM). Thank you for the opportunity to discuss the progress USNORTHCOM is making in working with the National Guard toward structure, procedures and authorities for homeland defense and civil support missions.

We believe the best way to protect Americans is to defeat terrorists as far away from our homeland as we can. We want to engage our enemies in "away games" like U.S. Central Command is doing in Operations IRAQI FREEDOM and ENDURING FREEDOM. We want to take the fight to those who threaten our way of life and our freedoms.

Although we have the advantage during "away games," we are also prepared to win the "home game" by protecting, defending and defeating threats against our Nation. An area of significant focus is the 500-mile "buffer" zone offshore. These approaches to our mainland do not have the level of real-time surveillance we believe is required to detect and interdict threats. Therefore, we are looking at ways to interdict terrorists or other enemies operating in these critical areas. Of note, we are encouraged by a technology demonstration to determine the potential of high altitude airships to look over-the-horizon throughout North America and out from our coastal waters for air, ground and maritime threats.

We are working with the National Guard Bureau to improve the ability of the National Guard to support homeland defense and civil support missions. In addition, the National Guard is evaluating how it might tailor its forces to meet the needs of the States and defend our Nation.

Following are some National Guard initiatives we believe would enhance USNORTHCOM's ability to respond to national security threats.

- **Joint Force Headquarters (State).** Transforming the National Guard State Area Command Headquarters in each state and territory into a Joint Force Headquarters (State) would provide a well-placed command and control capabilities for situational awareness and immediate response throughout the United States.
- **Chemical, Biological, Radiological, Nuclear and High-Yield Explosive (CBRNE) Enhanced Response Force Package.** The National Guard is organizing, equipping and training existing units to create regional CBRNE Enhanced Response Force Packages that provide capabilities for mass decontamination and rescue and to fill the gap between first responders and the arrival of more robust Department of Defense forces.
- **Joint CONUS Communications Support Enterprise.** The National Guard is evaluating the feasibility of a Joint CONUS Communication Support Enterprise using existing communications capabilities. This system would provide USNORTHCOM with access to near real-time information on local and state events and enhance our ability to identify potential requirements.
- **Quick and Rapid Reaction Forces.** The National Guard proposes to use existing National Guard forces to meet immediate requirements within each state and, if required, to provide Quick and Rapid Reaction Forces in support of the Commander, USNORTHCOM. These forces would alleviate part of the strain placed on the active duty components. We envision these units would act under Title 32 status while on alert and have "hip pocket orders" to convert to Title 10 status, if required.

These are a few of the initiatives we are pursuing with the National Guard to enhance unity of effort. We hope to take full advantage of the fact that the National Guard is forward deployed throughout America and is located in 3300 armories and Air National Guard facilities.

We appreciate your support and commitment to our mission, as well as to our servicemen and women. Through your efforts, the United States is better prepared to face terrorist threats. USNORTHCOM will continue to improve our capabilities to protect and defend this great Nation. I look forward to your questions.

DOCUMENTS SUBMITTED FOR THE RECORD

MARCH 4, 2004

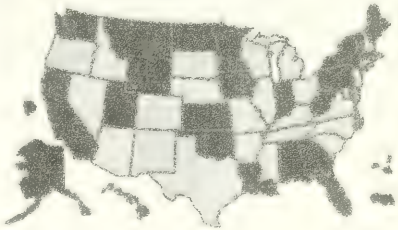
Homeland Defense/Security

- Leveraged
- Agile/Capable
- Resourced
- Needed

CBRNE
Enhanced Response Forces



Reaction Forces



Civil Support Teams



House Armed Services Subcommittee on Terrorism
Unconventional Threats and Capabilities
Republicans
Democrats
MILLER, FL
KLINE, MN
Lobiondo, NJ
WILSON, SC
SAXTON, NJ
MEEHAN, MA
TURNER, TX
SMITH, WA
McINTYRE, NC
HAYES, NC
GIBBONS, NV
THORNBERRY, TX
BARTLETT, MD
RODRIGUEZ, TX
HILL, IN
DAVIS, CA
LANGEVIN, RI
HERLEY, CO
AKIN, MO
DAVIS, VA
LARSON, CT
Cooper, TN

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

MARCH 4, 2004

QUESTIONS SUBMITTED BY MR. THORNBERRY

Mr. THORNBERRY. One of the areas General Eberhart mentions is expanding NORTHCOM's role not only in Maritime Security, but also critical infrastructure protection. Could you explain what type of support you could provide in the event of a crisis to help protect and recover from an attack against the cyber infrastructure? I'm particularly interested in what you can do legally considering that at least 85% of the cyber infrastructure is owned by the private sector.

General LOVE. The 2004 Unified Command Plan, change two, states: Commander, United States Strategic Command, through Joint Task Force-Global Network Operations, will "direct Global Network Operations and Defense." Within its area of responsibility, U.S. Northern Command is responsible for ensuring that all assigned forces and installations are meeting computer network defense readiness standards and have plans in place to deal with computer network defense threats. With approval from the President or Secretary of Defense, United States Northern Command will make available computer network defense and information assurance tools for detection and analysis of cyber events.

When directed by the President or Secretary of Defense, United States Northern Command would work in conjunction with United States Strategic Command to support the primary agency responding to a cyber attack.

FISCAL YEAR 2005 NATIONAL DEFENSE AUTHORIZATION ACT—SPECIAL OPERATIONS COMMAND OVERSIGHT

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
SUBCOMMITTEE,
Washington, DC, Thursday, March 11, 2004.

The subcommittee met, pursuant to call, at 1:24 p.m., in room 2118, Rayburn House Office Building, Hon. Jim Saxton (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, CHAIRMAN, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. SAXTON. The subcommittee meets this afternoon to consider the fiscal year 2005 budget request for the Special Operations Command (SOCOM) and to review the overall status of the Special Operations Command.

My belief has been reinforced by my extensive travels during the last year visiting Special Forces (SF) troops in the field, that the Special Operations Command is the most vital and critical player in the ongoing war against terrorism.

Since the formation of this committee last year, we have worked closely with the command and followed with great interest its many successes; some widely publicized but not credited to the Special Forces, and others not widely known at all.

More than any organization I have seen, Special Forces are content to accomplish the mission and let someone else take credit for it. You truly are the quiet professionals and we appreciate that.

Special Forces not only lead on the battlefield but also in their method of prosecuting war. Since the command was created in 1987, SOCOM has become the model in not just joint interoperability but true joint integration and interdependence of fighting forces.

Indeed, SOCOM and its subordinate commands are a model the Department of Defense can turn to as an example of how future forces from all services will fight and succeed on the battlefield.

SOCOM is a true transformational template: cultural change is embraced, technology is tested, then employed or discarded as appropriate; and new methods of operation are routinely attempted with command support.

Many forces and nations throughout history failed to prepare for the future that they could not predict. We must develop a strategy that provides security and peaceful stability not only in this great

nation but also for much of the rest of the world. SOCOM has and will continue to be an essential element in providing that security. The men and women of SOCOM literally thrive on those ambiguous environments.

They have proven time and again their resourcefulness, flexibility and adaptability that are the signature of the special operations community.

It is certainly fitting that the special operations symbol is the ancient spearhead, because members of this command are leading the Global War on Terror and are literally at the tip of the spear for this nation.

No one questions the great achievements of the U.S. Special Forces in our recent conflicts in Afghanistan and Iraq. And few question the wisdom of increasing the capability of the command to enable it to pursue a sustained campaign against the terrorist threat around the world.

I certainly support SOCOM's central role in the War on Terrorism. I am concerned, though, on one point: are we truly committed as a nation to using these elite forces in all appropriate scenarios? I have asked whether we have both the statutory authorities and internal administration processes established that will allow quick deployment of Special Forces units when appropriate. In other words, is the administrative approval process as agile and free from turf battles and red tape as the forces that are headed into the fight?

Secretary O'Connell and General Brown, we truly are here to help you and the warriors under your command. We look forward to your testimony.

Let me now turn to my friend, Marty Meehan of Massachusetts, for any remarks he would like to make.

[The prepared statement of Mr. Saxton can be found in the Appendix on page 109.]

STATEMENT OF HON. MARTIN T. MEEHAN, A REPRESENTATIVE FROM MASSACHUSETTS, RANKING MEMBER, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. MEEHAN. Thank you, Mr. Chairman and I, too, want to join you in welcoming all of the panelists today. It is certainly a pleasure to have the leaders of the special operations community with us today.

This is the perfect forum for showcasing Special Operations forces (SOF) talents. These silent professionals deserve their time in the limelight, if only to better educate this nation about their capabilities and sacrifice.

General Brown, I have had the opportunity to visit SOCOM personnel both in the states and abroad in Iraq and I am equally impressed with their commitment and professionalism, as Chairman Saxton.

The long periods away from home and the high level coordination and precision required to carry out their duties certainly proves that the call to be a special operator is one of selfless service. We are here today in an effort to improve our nation's Special Forces capability.

I note that in today's testimony several recommendations: these include recommendations from lessons learned in Operation Iraqi Freedom and Enduring Freedom. A proposal for small personnel increases throughout the community, at least in specialty areas.

I also see an excellent articulation about the command's new role as supported, rather than a supporting command, at least with regard to tracking and planning of operations against terrorists.

I applaud all of these recommendations and hope to explore them further during the Q&A period. But I am most interested in the area of intelligence. I recognize that the command has created several new offices and added battle management capability to increase situational awareness. These initiatives are certainly necessary if we are to succeed in the global war against terrorism.

General Brown, as you yourself state in your testimony, the counterterrorism problem set is, at its very core, an intelligence-based problem. It relies upon actionable and accurate intelligence, predicated by expert intelligence analysis and I couldn't agree more; to be sure, the highest strategic level as we have seen the pitfalls of incompetence and possibly, misused intelligence.

It is clear that a greater emphasis on strategic intelligence would likely have led to better policies over the last year and a half. That said I am most certain and interested in the tactical-level intelligence.

Intelligence support to the combatant commander in a timely and actionable form is necessary to fulfill the objectives as set by the National Command Authority.

General Brown, it is for this reason, that I am intrigued by the mention of your collaborative effort with Undersecretary of Defense Cambone, in the area to develop a new ISR strategy for intelligence, surveillance and reconnaissance.

I look forward to hearing more about this effort during your discussions. And again, Mr. Chairman, I thank you for setting up this hearing.

Mr. SAXTON. Thank you, Mr. Meehan.

We have one panel of witnesses for our proceedings this afternoon and I want to welcome our witnesses: the Honorable Thomas W. O'Connell, Assistant Secretary of Defense for Special Operations, Low-Intensity Conflict; General Bryan D. Doug Brown, Commander, U.S. Special Operations Command; Lieutenant General Philip Kensinger, Commander, U.S. Army Special Operations Command; Lieutenant General Paul Hester, Commander, Air Force Special Operations Command; Rear Admiral Albert Calland, Commander, Navy Special Warfare Command; and Command Chief Master Sergeant Robert V. Martens, Jr., Senior Enlisted Advisor, U.S. Special Operations Command.

We are indeed, honored, to have all of you here today and I understand that Secretary O'Connell and General Brown have statements. And then we will go directly into the question and answer.

Mr. Secretary, the floor is yours.

STATEMENT OF HON. THOMAS W. O'CONNELL, ASSISTANT SECRETARY OF DEFENSE FOR SPECIAL OPERATIONS, LOW-INTENSITY CONFLICT; GEN. BRYAN D. DOUG BROWN, COMMANDER, U.S. SPECIAL OPERATIONS COMMAND; LT. GEN. PHILIP KENSINGER, COMMANDER, U.S. ARMY SPECIAL OPERATIONS COMMAND; LT. GEN. PAUL HESTER, COMMANDER, AIR FORCE SPECIAL OPERATIONS COMMAND; REAR ADM. ALBERT CALLAND, COMMANDER, NAVY SPECIAL WARFARE COMMAND; AND COMMAND CHIEF MASTER SGT. ROBERT V. MARTENS, JR., SENIOR ENLISTED ADVISOR, U.S. SPECIAL OPERATIONS COMMAND.

Secretary O'CONNELL. Short statements, sir. Is the microphone on, sir? You can hear me?

Mr. Chairman, Congressman Meehan, distinguished members of the committee, I would like to thank you for giving me the opportunity to speak to you about special operations and the War on Terrorism.

I will keep my opening remarks brief, but would like to submit a longer written statement for the record, sir, with your permission.

I believe today's challenges to our special operations forces, our entire military and our nation parallel those we faced during World War II. As in that time, these challenges will be met by forces remarkable in their quality, self-sacrifice, courage, integrity and dedication.

At the tip of the spear are the remarkable men and women of the United States Special Operations Command. These special operations warriors and their service to the Nation inspire my team within the defense department in the special operations low-intensity conflict area to work diligently everyday to support and assist in our mandated oversight role.

And I can assure you, sir, that the relationship between my organization and the Pentagon and the United States Special Operations Command has never been better. In particular I have a close working relationship, partnership, and indeed, long friendship with General Doug Brown. Together we work to ensure that SOFs continued to be equipped, trained and deployed to meet the most critical needs of our nation.

I had the privilege of visiting many of our special operations personnel in Iraq during Christmas week. Those personnel that I met inspire me to continue to support the quiet professionals. It is clear to me that the capabilities so evident in Afghanistan and Iraq were the direct results of critical decisions made over a decade earlier to expand and improve our special operations forces. And much of that work came from this committee. Well done. And thank you for your support.

During the entire time that U.S. Special Operations Command has been in existence and SOLIC has been in existence, we have received outstanding support from members and staff in Congress. 1We will need your continued support as we ask for resources to further enhance our forces.

I would just like to close by saying it is indeed a high honor to be seated here today with General Brown, Lieutenant General Hester, Lieutenant General Kensinger, Rear Admiral, soon to be Vice

Admiral, Calland, and Command Chief Master Sergeant Martens. They have all devoted their lives to the defense of the Nation in the most demanding occupations and during the most demanding times. They represent an extraordinary group of men and women.

Thank you for your interest in and continued support of the entire special operations community and I welcome your questions, sir.

[The prepared statement of Secretary O'Connell can be found in the Appendix on page 112.]

Mr. SAXTON. Thank you very much.

General.

General BROWN. Mr. Chairman, Congressman Meehan, distinguished Members of Congress; it is an honor to appear before this committee today to report on the posture of our special operations forces.

With your permission, Mr. Chairman, I would like to make a few remarks and submit a longer written statement for record.

With me is the commander of the United States Army Special Operations Command Lieutenant General Phil Kensinger, the Commander of United States Air Force Special Operations Command, Lieutenant General Paul Hester, and the Commander of Navy Special Warfare Command, Rear Admiral Bert Calland.

They command the special operations service components that make up United States Special Operations Command and the tried and ready special operations forces to the geographic combatant commanders.

Also with me today is Command Chief Master Sergeant Bob Martens, the United States Special Operations Command Senior Enlisted Advisor. He is my senior advisor representing all enlisted special operations forces worldwide, he focuses on the needs and issues affecting both the enlisted special operator, their servicemembers and their families.

Mr. Chairman, I would like to highlight that today is Rear Admiral Calland's last day as the commander of Navy Special Warfare Command. His change of command ceremony is tomorrow in Coronado, California. I would like to take this opportunity to publicly thank Admiral Calland for his exceptional performance during two years of continuous combat operations, Special Operations Command and especially our Navy Sea, Air and Land, our SEAL component, its well-trained and extremely capable force because of his leadership.

As the commander of United States Special Operations Command, I have clearly defined our priorities as the Global War on Terrorism, readiness of our force, and transformation. Progress in these areas will ensure our command is decisive on the battlefield today and postured for success in the future.

The men and women of Special Operations Command are deployed around the world under the operational control of geographic combatant commanders: this is a force unlike any other. For the most part, they work in small numbers in remote locations. They often work with indigenous forces and in many areas, they are constantly ready to operate day or night in response to perishable intelligence.

Their selection process, high levels of training and maturity are the keys to their success. They maintain America's security and help create stability and opportunity in countries like Afghanistan and Iraq and quite frankly, I believe they are doing an incredible job.

Mr. Chairman, special operations forces are in high demand; are being deployed in greater numbers than any time in our history. Our operations tempo is manageable. However, in certain areas, such as civil affairs and psychological operations, where most of our force is either Reserve component or National Guard, we are stressed.

Today, all requests for United States Special Operations Forces are closely reviewed at my headquarters and require my personal approval prior to deployment. We cannot win the global win on terrorism without maintaining our superior warfighting excellence through a commitment to excellence.

Over the years we have built the most capable active Reserve and National Guard force the world has seen. To maintain this force and prepare for the new battlefield, we are reviewing all our requirements, our capabilities and our programs with our global war on strategy in mind.

Mr. Chairman, we are transforming our force. We are removing legacy systems to field new capabilities from looking across the Department of Defense and industry to identify new flagships.

We anxiously await a safe, reliable and maintainable CV–22 Osprey. As with readiness, our transformation efforts will be focused on the cornerstone of our special operations capability: our people. The budgetary authority provided by Congress makes this possible.

In conclusion, I want to thank you and the members of the House Armed Services Committee for your continued support of our soldiers, sailors, airmen, Marines and our great DOD civilians. The support of this committee and the support of the secretary of defense help make this success possible. Special operations forces are more capable and lethal because of your efforts. I look forward to answering your questions.

[The prepared statement of General Brown can be found in the Appendix on page 119.]

Mr. SAXTON. General, thank you very much.

Let me, at this point, take a minute to congratulate Admiral Calland as well and to thank him for his great service and his great cooperation with me and with this committee. We will miss you in the command, but we know you are going to be real close, so we are happy about that as well, in your new role here in this city.

Mr. Meehan, would you like to lead off with the questions?

Mr. MEEHAN. Thank you, Mr. Chairman.

Secretary O'Connell and General Brown, as I stated in my opening statement, I am particularly interested in improving the intelligence support to the combatant commands and I am very interested in your collaborative effort with Undersecretary Cambone to improve this process.

What can you tell us about the obstacles to this effort? And what are the greatest challenges to providing the combatant and field commanders with the necessary intelligence?

Secretary O'CONNELL. Thank you, sir, for the questions. It is indeed an important one. You asked first about the hurdles. There are hurdles and we try to work very carefully through those. I meet often with Undersecretary Cambone. I meet more often with Lieutenant General Jerry Boykin, who is his deputy undersecretary for warfighting. I have an extensive intelligence background; General Boykin has an extensive special operations background. And I think although we are in different disciplines, we work very closely through those issues that often arise.

When we have a procedural issue, I often deal with the J2 of the Joint Staff, Major General Ron Burgess. He, himself, has served in many special operations jobs. There aren't many issues that we can't work out.

There are some complex ones. A recent one that seemed sort of mundane was working out how do we deal with the documents that were captured in Iraq. There are some things that we would like for the Special Forces side, some we would like for WMD search. And we worked those out very carefully with Dr. Cambone.

I would like to point out that in the War on Terrorism, many of our issues that affect SOF do not really come from work with the national intelligence community, or use of national technical systems; certainly they are important. But it has been my experience that the amazing personnel from the special operations forces on the ground, have in many cases, created their own intelligence. They react quickly; they know what they are looking for; and when they find it they are able to, in many cases with coalition partners, go right into the next act and it is really an amazing thing to watch.

So, I would say, sir, that the obstacles that we do have we work through. There are some things that we are looking at in the future that we have discussed with Secretary Rumsfeld, in terms of new procedures. And I would let General Brown discuss the rest of those, sir.

Mr. MEEHAN. Thank you, Mr. Secretary.

General BROWN. Sir, I think you hit the nail on the head in your opening comments. This is an intelligence battle that we are out fighting and it is more akin to a police in downtown New York than the traditional military operations. It is developing that intelligence out on the tactical level on the battlefield, like you mentioned, at the tactical level, and immediately turning that intelligence over because it is extremely perishable and it is taking maximum effectiveness of that intelligence when you get it.

I would say I applaud the efforts of Mr. Cambone and his initiatives with intelligence. We have a great working relationship with him, as we do his deputy, Jerry Boykin. We have routine visits from him. We have a lot of discussion with him. We think things are good.

As far as an obstacle, it would be hard for me to identify one. As issues come up, we go and work them one-on-one and quite frankly, the spirit of cooperation is very good.

At SOCOM, I can tell you what we are doing. We have stood up an interagency collaboration center that is manned, that allows us to use intelligence from the databases throughout DOD. It is at Special Operations Command in Tampa, Florida. Additionally, I

have interagency folks throughout my headquarters. Today we have about 105 folks from other organizations that have Liason Offices (LNOs) at SOCOM headquarters to help us work through all kinds of coordination problems, specifically intelligence problems.

Out on the ground, we have established cross-functional teams with DOD intelligence experts that are out on the ground in the tactical area that are helping us to tap back into those databases that are available in the theater, or either farther back. And once again, use that fleeting intelligence as rapidly as we can to continue to develop targets.

Mr. MEEHAN. Thank you, General.

General Hester, it is great to see you again and thank you for hosting our visit to AFSOC. It is great to see you again. General, what can you tell us in this forum about the strengths and weaknesses of the AC–130 gunship and would you shed some light on the need for a next-generation gunship?

General HESTER. Well, thank you Congressman. It is always great to have you down at AFSOC at Hurlburt Field and we would welcome another visit any time you can get away from your duties here in Washington to come back down there to the Emerald Coast.

Congressman Jeff Miller would gladly welcome to have you back down in the 1st District of Florida; disappointed that he has had to miss today and we will hope for the health of his wife as she gets through this period.

Sir, as you know, the 130 gunship has provided remarkable firepower on the battlefield since Vietnam, through a host of platforms. We are currently in two different versions of the 130 now called the H model and the U model that provides that firepower to our people. It is easy to put a C–130 during the period of darkness and low illumination over the head. And in fact, if you talk to any of our young people on the ground they get a comfort in a nonlinear battlefield, a comfort when they don't know where the enemy is, of hearing the drone of those four engines overhead.

It also provides a threat, if you will, by the drone of those four engines to our enemy, who also know what the firepower means and what that droning sound of those four engines mean overhead. As the threat rises on the battlefield, as you know, thus the ability for that AC–130 to stay overhead in a persistent category, it starts to diminish, and of course, it reaches a point where you get to the high threat arena, then it can only make essentially one pass, shooting as it makes one pass over the target.

So consequently, our needs for the future in a next-generation gunship are a modernization of the current gunship, as to provide them the ability through technology to be more persistent on the battlefield, overhead of those young folks, as well as open up the aperture of when they can stay there, meaning either in high illumination at night or possibly through full high illumination during the daylight hours. The Air Force and SOCOM have been for the past two years in a joint working relationship to look at the next-generation gunship, trying to identify what that means to us. Is it going to be a new platform, is it going to be weapons on the current platform, or is it going to be a combination of both?

General Jumper is our chief of staff in the Air Force and General Holland and now General Brown, are working that very closely and

collaboratively to find the right solutions to that. We are working for an analysis of alternatives and we will be looking to increase R&D efforts over the next few years through our budget submissions over the next few years.

As you are well aware, we have some programs down in R&D now. We ask for your continued support as you have given it to us in the past on those efforts that we currently are working on in the weaponeering-side of the house. And until we can solve the ability to open up that aperture, and when we do solve that with our friends in industry, then we will be coming forward with platforms to ask for your support in the future.

Mr. MEEHAN. Thank you, General.

General Brown, what can you tell us about personnel manning levels? Is the special operations force community fully manned? And if not, why?

General BROWN. We are not fully manned, but it depends specifically on what specific military occupational specialty that we are talking about, as far as Special Operations Command. We are about 49,000 strong with about 15,000 of those in the Reserve component. So, when you talk about specific levels of fill on some of our forces, some are tougher to fill than others.

The component commanders could probably discuss the specific shortages in their components, but I would lead off by saying the first MOS, military occupational specialty, where we have a shortage is in our standard Green Berets.

That is kind of the core of Army Special Operations Command and I will ask General Kensinger to address that at the end of my remarks, if that would be okay. And General Hester can talk, or the Chief Martens can discuss the shortage in our combat controllers, which is another area that we are stressed in. General Kensinger, you want to talk about the Green Berets?

General KENSINGER. Yes, Sir. On the Green Beret side, as you know, from your visit, it takes anywhere from 18 months to 24 months to put a soldier through the schoolhouse to have him at the basic level of Special Forces.

On the front side of that, our recruiting is going very well. We have instituted under General Brown's initial command, our 18 X-Ray Program, where we are taking recruits right off the street, signing them up for five years, putting them through our assessment and selection program and putting them through our schoolhouse. Thus far, we have had over 120 soldiers go through the schoolhouse. We have about 38 of those soldiers that are actually out in the field now with those elements.

The other challenge on the recruiting side is on the active duty Army. Where in the main Army, two-thirds of the Army was forward deployed, it is tough to keep that recruiting side up. Although we are working very hard with the Army to do that and they have been very, very supportive of that program. That is a challenge to get active duty soldiers into the schoolhouse.

In the schoolhouse itself, since before 9–1–1, the schoolhouse was pushing through about 9,000 students a year, we are up to 17,000. General Brown and the SOCOM staff is working very hard with us so that we can increase of the schoolhouse. We have gone from 450 graduates a year in the Green Berets to this year, we should have

over 550. Tied in that is retention. Our retention has been very good because we get soldiers that come into this business because they are warriors. They enjoy the business and they are doing very well.

The challenge that I have is the 20-year mark. We have all that experience retirement-eligible and our challenge is to work those different issues and programs to keep soldiers in past the 20-year mark, where they have the best experience level and capacity that we can possibly give them. So, General Brown and his staff is looking at some incentives of how to increase the desire of those soldiers to stay past the 20-year mark.

Mr. MEEHAN. Chief Martens.

Command Chief Master Sergeant MARTENS. Sir, we appreciate the efforts and we are filling the forces that we have as quickly as we can. And as we ramp-up the schoolhouses, there appears to be enough volunteers to start that process off.

General Kensinger is talking about retaining our senior force. I can tell you as we train our young, combat controllers and power rescue men and our other special operations force soldiers and sailors out there, at the 24-month mark in their training they are very enthusiastic and very well trained. At the 20-year mark they are very well matured and very experienced and we are trying to carry those forces past that 20-year mark. So, just as when I was a young airman and a young non-commissioned officer out in the field, and I had 24, 26, 28 years of experience in the non-Commissioned Officer (NCO) corps mentoring me through my junior years, we are working to maintain those same standards.

Mr. MEEHAN. Thank you, Chief. One last, if I might——

Mr. SAXTON. Could I just break in for just a moment? I am aware that there are some specialties in the Special Operations Command, that where the average incoming operator has maybe been in the service for seven years. And that, on top of the seven, now we are going to do some special training to get that person up to whatever the required ability level is in those specialties.

So, they are nine years in the Army before they are an operator. Now, if they retire at year 20, we get 11 years of service out of that person who does very special kinds of things. And it would seem to me, and we have had this discussion before, but for everybody else to hear it, can you elaborate on what kinds of incentives might be helpful in keeping men or women in for, let's say 25 years instead of getting to that 20-year retirement?

General BROWN. Sir, let me talk about that in just a second and then I will pass it over to these guys if they would like to get in on it.

One of the things that is happening to us today is that these guys that have these special skills and the training program and the training pipeline for a Green Beret, which we are talking about right now. But it also applies to some of our special operations aircrews and our combat controllers and our SEALs, but if you put into perspective that a guy that just made up his mind to join special operations after September 11th, he is just now starting to get into the force, if he joined up right away and he has gone through the entire training process and we are just starting to get to use this guy at this time.

The environment after September 11th for special operations forces is different with the competition that now exists out in industry for these special skills that these guys bring when it gets to their retirement date. There is a great competition out there among security firms.

You have a guy here who is an expert in security, he is a very mature individual, he has traveled around the world, they all will speak a foreign language, and by their 20th year in service, they will speak that language very, very well, because they will have done repeated tours back into the same area of responsibility (AOR) that we have targeted them to. And that is another reason that we need to keep these guys around, because they come out of our school; every Green Beret graduates with a language capability. And he gets out and starts using that and by the time he has 20 years in special ops, this guy can speak the language very, very well and that is when we need to keep him most and that is when the competition is the keenest for civilian industry to hire him for his skills to operate in Homeland Defense or some other security firm around the world.

So, that is a new impact on special operations forces over the last couple years. In the first week of December of 2003, I asked my senior enlisted advisor to put together a team of about the E–7, E–8 NCO level and bring them down to Tampa about 20, 25 folks and to bring their wives with them. And so we brought them down there for a week and quite frankly, we just had week-long open discussion with them about retention problems; what can we do to help you stay in service.

The number one thing that keeps a soldier, sailor, airman, or Marine in service is job satisfaction. And right now, these guys have great job satisfaction out on the battlefield because they are doing, as General Kensinger said, they are doing exactly what they signed up to do and that is to get out into the arena and contribute.

After that, there are family issues and monetary issues and things that we need to take a look at, and education incentives, that we need to take a look at to see if there aren't some initiatives that we can get started. I would tell you that Tiger Team, so to speak that we put together down there is about to report out. They have been working some of the issues; they will give all of our component commanders here a back brief here in two weeks in Washington D.C. when we have a Commander's Conference. And at that time, I believe that we will have some initiatives on the table that we can take on to try and see if there is something that we can get going to try and retain these people before the 20-year point, but specifically after the 20-year point.

Mr. SAXTON. General Kensinger, you have anything else? Anybody have anything else they want to add?

Command Chief Master Sergeant MARTENS. Sir, I have to tell you that at the 20-year mark in service for our special operators, the American taxpayer has invested a little bit over $2 million in training and pays in those personnel. And the money is not important on my side of the house. The experience that those troops possess is the important part so we can pass that on to our youngsters.

We are looking at things such as educational benefits, we are looking at things of retirement benefits and special pays; we can never compete with the outside and civilian agencies when it comes to monetary funds, not dollar-for-dollar. But our goal is to make the families and the servicemen as comfortable as possible.

Nobody expects to get rich in this business, but we do have, at my age, we have children in college, we are looking to make a final house payment perhaps, we are looking to not have to jump off into another career and start working full time immediately. And at the 20-year mark is when our folks are probably the most employable.

Our personnel we are leaving, so they could get out at the 20-year mark, pursue four years of college so they would be more employable and then move on to a second career, they are now jumping right into that second career and making anywhere from $100,000 upwards to $200,000 a year and they are doing that in a six month time period in some cases. We can never compete with that, but we can compete with job satisfaction and we can make their families as comfortable as possible.

Mr. SAXTON. I would just say for the benefit of my colleagues, and tell me if I am right, the senior NCO that we are talking about, who possesses these skills in the special operations courses is probably making a little under $50,000 a year.

Command Chief Master Sergeant MARTENS. Sir, they are probably right about at the $50,000 a year at the 22-, 24-year mark, talking E–7s and E–8s.

Mr. SAXTON. And so, they can, in some cases, quadruple their salary, if they decide to do something else.

Command Chief Master Sergeant MARTENS. Yes, sir. An E–9 in the armed forces today retiring at 20 years of service gets about $23,000 in retirement pay.

Mr. SAXTON. Well, Chief, General Brown and everybody, when you get your recommendations out, if there is some action that is needed by this subcommittee, we will get right after it. Because I think this is an extremely important issue.

Secretary O'CONNELL. Mr. Chairman, if I could, just add one item to General Brown's testimony. He indicated that there was a tremendous amount of competition from the civilian sector. That is true.

But our colleagues in the CIA and other government agencies are not reluctant at all to come in at 20 years, or even sometimes before someone retires and offer a much better pay package, much better benefits and of course, they have someone that has had a security clearance, is superbly trained, gets credit for their years of government service. And that in my view is starting to become a significant problem. It doesn't mean that the CIA doesn't need them, but it is another issue that I think General Brown and his team are going to have address.

Mr. SAXTON. Thank you, Mr. Secretary.

Mr. LoBiondo.

Mr. LOBIONDO. Thank you, Mr. Chairman.

Just very briefly, gentlemen, I want to thank you for being with us today and we very much appreciate your service to our nation and the excellent leadership that you are providing. As was mentioned earlier, I was very pleased to accompany Chairman Saxton

on the special operations bases tour just a short while ago to meet with many of you. And I have to tell you, I was very impressed with the level of pride and the unbelievable dedication.

It was sort of revealed when I had some very personal moments with men who had served with Dave Tapper, a Navy SEAL, who was killed in Afghanistan and for Tom Walkup, Special Ops for the Air Force, and listened to the stories of the men who had worked with these two great Americans. So, it is just sort of an up scaled appreciation for what you all do and what your men and women do.

So, very briefly, Secretary O'Connell, I have a question about DOD's plans for funding and that is, for SOCOM, do you see it being kept at current levels or is there significant increase in the horizon over the next few years? How do you see this coming down?

Secretary O'CONNELL. Sir, in my discussions with General Brown my budget people sat with his budget people and look as best we can into the future. As you may imagine, Sir, some of the things that will happen to the Special Operations Command are not solely under General Brown's control.

I will give you an example of the CV–22 development. Those costs are tied to what happens in the Marine Corps, what happens in unforeseen R&D costs; a whole chain of events that are actually not under our control. To the extent that we can, we look very carefully at what we think the requirements might be.

General Brown has unique acquisition authority among the combatant commanders, and he can make, certainly, some purchases that take advantage of economy of scale. If there is a new technology that might offer his special operators an advantage, he has the ability and the flexibility and the support, normally, of the defense leadership, to make that move in acquisition and take advantage of that. I see a steady funding stream barring any significant event such as something happening to the CV–22 and perhaps General Brown would want to address any other issues.

If I could, I would just like to add one addendum to Congressman Meehan's question on intelligence. I meant to inform him that, in terms of intelligence support, I do in my office, Sir, have a Central Intelligence Agency (CIA) officer, an officer from National Security Agency (NSA), an officer from Defense Intelligence Agency (DIA); and they attend all my meetings. And I thought that point was important to mention. I am sorry, Sir.

Mr. MEEHAN. Thank you, Mr. Secretary.

Mr. LOBIONDO. Just as a quick follow-up: I know currently there is a very high operations tempo and expanded areas of responsibility.

So, you see the funds sufficient to meet these challenges in the short term and feel confident that, barring something huge, that long-term we are on the right track here with the funding for special operations?

Secretary O'CONNELL. I do, Sir. And I am very confident in the command's ability. We have several very experienced aviators here; General Brown being one of the more distinguished that has ever worn the aviation wings.

But, they are able to take a look at this most significant part of the U.S. Special Operations Command's operating budgets of the

future; look at their fleet of aircraft; the special requirements placed on those aircraft, and make, I think, some very good judgments in terms of which aircraft they can upgrade and which ones need new purchase; what types of new capabilities are needed. And since the aviation element is such a major portion of the budget, I would prefer passing that to General Brown, if you don't mind, Sir.

General BROWN. I believe Mr. O'Connell hit the nail on the head. Our 2005 budget request is for about $6.5 billion. We would hope that that would continue into the future.

I think we have great plans for where we want to go. You are looking at the board of directors. We have a strategic planning process that designs our budget requests saying where we will go in the future that, quite frankly, includes all these guys at the front table and is vetted through the services in cooperation with the services.

And we work very close looking at programs much like the CV–22, and we iterate with General Jumper and the Air Force, and Mike Hagee and the Marine Corps on a regular basis on that type of a program. I think that barring any unforeseen circumstances like a problem with the CV–22, I think we are good in 2004. I think our budget request is exactly what we want for 2005 and to help us continue on with the programs we have going on right now.

Mr. LOBIONDO. Thank you, General, very much. Mr. Chairman, thank you.

Mr. SAXTON. Colonel Kline.

Mr. KLINE. Thank you, Mr. Chairman, thank you, gentlemen, for being here. I am going to ask an obligatory question about the Marine Corp here in just a minute.

But first, the discussion so far today about intelligence has focused on your need to have it and the organizations that are in place and the cooperation, the imbedded liaison officers and, so forth. But you are also information and intelligence gatherers; perhaps more than the other elements of the armed forces. And yet, those other elements are working in the same neighborhoods that the special operations forces are, as well; literally in the same neighborhoods and need that kind of intelligence.

Would one of you be willing to address what might be in place to get intelligence from your forces to the regular forces?

Secretary O'CONNELL. Yes, Sir. I can give you several examples and some involve strategic intelligence; some involve tactical intelligence. And I go back to, not only the experience of my own career when we worked very closely with special operations forces, and even if you were a conventional unit like the 82nd Airborne Division, there were often special operations liaison elements that shared that information.

If you looked at what is taking place in Haiti today, I am very confident that, under General Tom Hill, the combatant commander in Southern Command, that he has a seamless operation where the special operations forces that are on the ground there have regular meetings and share the same information in terms of the situation on the ground, with the conventional forces, in this case, primarily Marines.

You mention the fact that special operators are often intelligence gatherers. My limited experience in Baghdad was a superb sharing amongst those conventional units responsible for certain sectors with our special operations forces and those task forces configured for specific objectives such as high value targets.

Let me just close, Sir, by mentioning; we oftentimes don't understand the tremendous benefit that accrues from the travel of our special operations forces. Many of whom have done unbelievably technical-in-detail surveys that are catalogued that offer wonderful repository for future operations. And that is an important component of intelligence that sometimes we overlook.

Mr. KLINE. Thank you and, general, you can add to this if you like, but when some members of this subcommittee were in Iraq last October, we had the opportunity to talk to special operations forces. It is very clear that you are working very hard in gathering information, either from cooperating Iraqis or your own eyeballs.

And I just was looking to know that there is some institutional way that you are passing that information on to the conventional forces, and your example of Haiti is a very good one.

Let me ask the obligatory question about the Marine Corps. We now have some Marines that are special operations forces, a small group of them, and yet we are seeing the Marines, as the secretary said, engaged in Haiti, and an Marine Expeditionary Battalion (MEB) going back to Iraq, and Marines in the Horn of Africa, and at least two Marine Expeditionary Units (MEUs) floating. The point is they are pretty heavily committed.

Two questions: How do you see how they are doing right now; the small group of Marines that you belong to you, General? And, what do you see for the long term?

General BROWN. First of all, Sir, we just finished the Marine Corps SOCOM war fighter last week up at Camp Lejeune with all the guys that you see here at the table and a whole collection of general officers and other experts in every area.

It is about a week-long exercise where we take a bunch of action officers up there and put them up there ahead of General Hagee and I. They wring out every issue that we can all dream up and make sure that there is a way ahead in every specific issue; for example, acquisition.

The Marines have total visibility of every one of our acquisition programs. We have visibility of theirs. We are working very closely together on making sure that we both get a vehicle that will work; that is compatible with the CV–22 and their MV–22.

So those kinds of issues, two include war-fighting doctrine issues, we worked those out in this war fighter that we just participated in, last week, and it was very, very successful and General Hagee hosted this up at Lejeune and then we will host another one, prior to Christmas, probably down at Tampa where they will come down. This will be our third in a series of war fighters where we just get at the issues that you are talking about.

Currently, we have about 100 Marines in this Marine Corps SOCOM detachment that will deploy here real soon. There are about a hundred of them; they have enablers with them, ANGECO kind of stuff, radio reconnaissance kind of stuff. These folks are handpicked; many of them have worked with us before in special

operations, many of them are Special Forces qualified, Ranger qualified. It is an incredible group of folks that we are excited about having work with us. This is a proof of concept.

We are going to deploy them with our Naval Special Warfare Task Unit 1 and they will work with them for six months and during that time we will look at opportunities for how we can better interface specifically with this unit but U.S. Marine Corps at large based on the working relationship and how the missions break out and training opportunities and they will continue to work tactics, technique and procedure problems.

And quite frankly, I have talked to both of the commanders of those units and they are very excited about it and I would tell you, I think this is going to be a very successful deployment for this 100-man Marine Corps detachment. I believe that after these guys get back or 90 days into this thing, after we have seen this, we will have a clearer picture, a more clear picture, of where we think this wants to go in the future and what path this is going take.

And General Hagee and I have a great relationship and we both are looking at this interoperability problem and, quite frankly, we are very, very close to the U.S. Marine Corps right now.

Mr. KLINE. Terrific. Thank you very much, and I yield back, Mr. Chairman.

Mr. SAXTON. Mr. Hayes.

Mr. HAYES. Thank you, Mr. Chairman and thank you, gentlemen, for being here. Have you ever heard of Fort Bragg?

General BROWN. I have heard of that.

Mr. HAYES. We refer to it as the epicenter of the universe. General Kensinger and General Brown, we talked over the years about the need for additional PSYOPS and civil affairs folks, I noticed in your statement, we have four Reserve and two active duty Physchological Operations (PSYOPS) that we are adding, and two Reserve, two active duty civil affairs. Is this going to be sufficient to take care of the need immediately?

General KENSINGER. Good afternoon, Congressman. It is good to see you again. And it is the center of the universe for Army special operations, you are correct.

Sir, those are the initial figures that we got in last year's Total Army Analysis Program. We have two additional PSYOP companies that have been validated and we are working those requirements this year to have those positions and slots given back to us.

I am also prepared to brief the BOD that you see in front of us in two weeks on the building of a Civil Affairs (CA) brigade, if you will, there at Bragg that will be regionally oriented in each one of the battalions like we have with our current PSYOP.

With the amount of work that we have and the amount of folks that we are now bringing into these two organizations, I am confident we have the right mix for our Active Component (AC) and Reserve Component (RC) for future operations.

General BROWN. Additionally, there is another piece to that, I think. And that is to ensure that we are very aggressive, which General Kensinger has been, and Army Special Operations Command has been for some time, to ensure that all of our civil affairs forces are train to Military Occupational Specialty (MOS) standard. They are fully qualified. We can gain some efficiency by being a lit-

tle more aggressive in our school and getting more of those people through it, trained at a faster rate. That would, thereby, give us more force structure in the field.

One of the things I failed to mention earlier when we were discussing the number of people that we have in all of our units is that our first priority, as we do our budget and our Program Objective Memorandum (POM), is down at Special Operations Command in Tampa is our schoolhouses. We have put them up at the top to ensure that they get the funding they need and the people they need and the equipment they need to ensure that we can get a good, solid throughput of all these people that want to be in special operations. That will ultimately, as the second and third order effect is that that will help us fill us some of our civil affairs slots.

Mr. HAYES. Thank you, sir. Just to make sure you don't fail to ask us for what you need, we appreciate what all of you are doing and the men and women that serve you.

Let me add my congratulations to Admiral Calland. We had a great trip up to Virginia; that was a nice cold day. General Hester, thank you very much for your help in putting our special operations aircraft inventory together. That is still out there. How are we doing? Make a plug for more, newer.

General HESTER. Well, thanks Congressman, always nice——

Mr. HAYES. Had my nightstalker patch out last night; that is what got me.

General HESTER. Always great to give an advertisement for what we need in aviation and of course, my friend, Phil Kensinger, down at the other end of the table has as much interest in aviation with the 160th, as certainly we do in Air Force Special Ops Command.

As you know, we are continuing spiral development: it is an interesting way to and an exciting way for us to build new technology and legacy platforms like the AC–130, which we have seven versions of in Air Force Special Ops Command, and of course, one of the premier programs, as General Brown has already alluded to, is the CV–22. Once it passes its operational test and evaluation, we are excited about the retirement of our Pave Low helicopters in the end of this decade. And bringing on for initial operation capability, that CV–22 both, first at Hurlburt and then across the other commands where we are going to station in the Pacific and in Europe.

So, there is an exciting time ahead, albeit it was one we will need to continue to stay close with you as members of the committee because these platforms are not inexpensive. But, they in fact, as you know, based on the legacy systems we will retire, we keep them around for a good 40 years. So, we are excited to get them, the safe, reliable platforms that will take these young Americans to the battlefield and bring them back safely.

Mr. HAYES. We have one of your Pave Low operators up here. I don't want to mention him by name and embarrass him, but it may cost you another $10 million to remediate after he has been in Washington.

General Kensinger talk to me about the new XM–8 rifle. That is a new one on me. Is that going to be, by the time we get through all the process, is that going to be useable for you all or are we going to have to modify it to make it work? I was unfamiliar with that.

General KENSINGER. We have a program where we want to ensure that our SOF operators out on the ground have the absolute best weapon in their hands that they need. As part of that program, we are looking at just exactly what our future requirements are for future carbine. And in doing that, one of the contenders is the XM–8, which is the Army's weapon of the future that we are taking a real hard look at to see if it will also meet our requirements.

Mr. HAYES. Again, my time is up. Thank you all for your incredible service to country and thank you, Mr. Chairman, all our committee members for their tremendous interest and support for these folks.

Mr. SAXTON. Thank you, Mr. Hayes.

Mr. Wilson.

Mr. WILSON OF SOUTH CAROLINA. Thank you very much, Mr. Chairman. I would like to thank all of you for your service. One of the highlights of my service in Congress in two years has been to visit the special operations forces and I want to thank Chairman Saxton for his leadership in putting that trip together.

I was certainly familiar with the equipment that all of you have, but it was certainly the dedication of the personnel that we saw that meant so much. And we are just reminded everyday, to me, that in the War on Terrorism, that the most effective defense is to go after the terrorists overseas, not wait for them to arrive here. And again, a chilling reminder of that was the attack in Madrid this morning. But thank you so much how you are leading the effort to protect the American people.

In the testimony of General Brown, it was indicated that there were several lessons learned from Operation Iraqi Freedom. One that has always been of interest to me as a former Judge Advocate General (JAG) officer is fratricide. And I appreciate so much the success that has been made in reducing fratricide, but I understand that we want it to be zero. And so, I would like to know from each of you, General Brown, General Kensinger, General Hester, Admiral Calland, if you would identify what the status is on and progress in regard to reducing fratricide.

General BROWN. Bert, do you want to start, if that is okay with you?

Admiral CALLAND. Sir, thank you for the question. I think that obviously, we have had instances of that early on in Operation Enduring Freedom (OEF) when we first went into Afghanistan, unfortunately. However, I think the lessons that we have learned are to be able to employ, in many cases, better technology.

The Blue Force tracking systems that we currently have right now, that we fully employed in Iraq went a long way and really cut down dramatically on the threat or on the possibility of fratricide. I think it is the situational awareness that we can spread across the battlefield so that all the players that are engaged can understand exactly where the friendly forces are and where the enemy's forces are.

I think procedures on call for fire are standardized and across all those forces that do call for fire have a standard procedure that they can use and so there are not any discrepancies based on the methodology by which somebody calls in for an airstrike. And I

think those are two areas that we learned and that have significantly reduced the instance of fratricide.

General KENSINGER. I agree with what Bert said. One of the, I think, two other lessons learned that we came out is one, that our doctrine has been sound. How we put our special operations liaison element in the AOCs, in the Air Operations Center, to help control fires, has proved its worth in these last two conflicts.

The second is kind of unique in Operation Iraqi Freedom was that SOF in itself controlled two-thirds of the country. We had our own joint special operations areas where we controlled all fires in that area, all movements in there and that is again, was a doctrinal piece that we have had for a number of years that we were allowed to execute. That, plus the technological pieces in the clearing of fires, I think, have been major successes for us. I think what we have to do is continue to capitalize on that.

In the Army side, we are working with the combined training centers to ensure that the conventional force, as well as its special operations forces understand where those seams exist on the battlefield and we continue to close those seams to, again, prevent fratricide of our soldiers, sailors and airmen.

General HESTER. Congressman, thanks for that question. Let me just jump on the backs of my two compatriots down the way. It is the standardization of training, as well as the technology, that we need on the battlefield.

Chief Master Sergeant Bob Martens is a combat controller sitting next to me, now serving as the senior enlisted advisor, but he has been one of those who has been trained at the highest standards, to in fact, be able to know the procedures of the pilots in those various platform cockpits overhead; to be able to direct them, to be able to plot the commensurate coordinates, and to be able to direct them with rules of engagement calls on the battlefield. And it has been that level of standard of training that has, in fact, been able to help us reduce, in principle, the number of blue-on-blue incidents we have had on the battlefield.

It is the reason that General Brown has asked General Kensinger and me to head a task force to, in fact, look at increasing the number of personnel that we have on the battlefield who can in fact, call for fires and who have been trained at that standard. It is also an objective that both the joint businesses work from the Air Force to the Army to the Marine Corps through Joint Close Air Support (JCAS) operations in the Pentagon. So, there is an excitement about this, of training people to the right level all across the military and we are aggressively pursuing that inside of SOCOM.

General BROWN. Sir, just to end that discussion, I agree with everybody that has already talked today. It is a procedures thing, it is a technology thing, it is a training thing, we have to get at all those pieces.

I applaud the Air Force's effort on the battlefield air ops kit that they are fielding. It has some technology in it that will certainly help. Blue Force Tracker is one piece of the answer; it is not the only piece of the answer. I do think it is a priority. We have suffered some casualties, including on a personal note, my son-in-law,

who is a Green Beret, was hurt very badly with a fratricide incident during the early days of Afghanistan.

But for all of our forces, be whatever service they are in, and specifically in SOF, it is a problem; we are working it hard. And we think it is important.

Mr. WILSON OF SOUTH CAROLINA. And I appreciate the efforts of all of you. It really is reassuring as a parent of children in the military, one in Iraq, I am just grateful for the progress that you have made.

And one final point, I certainly want to thank everybody that has been so helpful to us, but General Hester, you and Congressman Jeff Miller couldn't have been more gracious in your efforts to show us the capabilities of the C–130's. And I had had the opportunity to see it at Karshi-Kanabad in Uzbekistan and then to have the opportunity at Hurlburt and again, it is just reassuring to know what is being done to protect the American people through Special Forces.

Thank you.

Mr. SAXTON. There is one thing that you should all know about Mr. Wilson and his family.

He has a large family and when the little ones get about four or five years old and they start to talk, the first question they have to answer is, "Which service will you join?"

Mr. Turner.

Mr. WILSON OF SOUTH CAROLINA. We will get some recruiting packets in the mail, sir.

Mr. TURNER OF TEXAS. Thank you, Mr. Chairman.

General Brown I have had an interest for some time in trying to advocate and to see the Special Forces capability increased by trying to have joint Special Forces with other countries that may be willing to cooperate. In the War on Terror, I think that is going to be essential.

It is also true however, that many of those countries that are in the Arab world are reluctant for various reasons to participate jointly with us. Even though we may have some tacit support from certain of those countries, actual joint, visible operations may not be acceptable.

And so, I have had a strong interest in being sure that the Special Forces have the authority to do what I understand, CIA can do under law, and that is, when in a country, like Afghanistan, they can employ Afghans to assist them. I would like to see the Special Forces have a similar authority under law.

I realize there are many issues that have to be considered here, but I would like to know what you think about this idea. I have been told that there is an interest in this and that there, in fact, may be some draft language circulating at the Pentagon that would give you this authority that I have a strong interest in being sure it gets into this year's authorization bill. So, discuss that issue with us. Talk about the need for it and the right way to go about it.

Secretary O'CONNELL. Sir, I think you are exactly right and I appreciate your question. What we think we need the authority to do is when we get on the ground, such as an Afghan scenario, where our S.F. teams went in there early, is to allow the special forces team, at the lowest level, operating with local Afghan, in this in-

stance, local Afghan forces, like the Northern Alliance that we trained and worked with, is to have a mechanism by which, and the authority, by which they can equip these people and give them that. It is train and equip. We need some money for training them and we need the authority to spend that money to train and equip them.

When we got into Afghanistan and started training some of these forces, we did not have a mechanism in place that would allow us to take a group of Northern Alliance soldiers and provide, let's say, uniforms or boots or something along that line in a timely manner. Of course we do that as the war matured, as the battlefield matured, then they other systems kicked in that allowed us to do that.

But we would like to investigate an opportunity to do that much more quickly, so that an S.F. team on the ground can train and equip an indigenous force. Mr. Secretary, is that consistent with what your thinking is on this issue?

Mr. TURNER OF TEXAS. Yes, sir, absolutely. And I go all the way back to days in Vietnam when I wish we had some of this authority.

General Brown has sent a very thoughtful proposal forward that I think asked for certain authorities. We have put it in to the type of language that, as you know sir, is required over at Office of Management & Budget (OMB). As it goes through that sounding board process, where other elements are allowed to look at it, as you might suspect, there may be some push back from either state; from CIA or elsewhere and we are awaiting those comments.

I am very gratified that Dr. Cambone fully supported it; some felt that that is getting into the intel equities. The secretary has indicated his support for it and we are anxious to get that back from OMB and push that forward.

Secretary O'CONNELL. And I, sir, and I know General Brown, men and women of the U.S. Special Operations Command would be greatly appreciative if that could be advanced forward.

Mr. TURNER OF TEXAS. Mr. Secretary, it would be helpful to us, and I know the chairman would probably join me, if we could see that language that has been proposed so that we could look at it.

I personally, feel strongly enough about it that I want to be an advocate for including that in this year's authorization bill and I would hope other members on this particular committee would feel equally as strong. Thank you, sir.

Secretary O'CONNELL. Thank you, sir. We appreciate the support.

Mr. TURNER OF TEXAS. Thank you.

Mr. SAXTON. Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman. Gentlemen, I want to thank you very much for your testimony today.

I just had one brief area that I wanted to touch upon, just wanted to follow up on some of the questions my good friend, Congressman Hayes had raised with respect to civil affairs training. And it is primarily for General Brown and General Kensinger.

I have had the opportunity to meet with several members of Army Special Forces. And they have noted that there was certainly a growing need which you already touched upon for civil affairs training. I wanted to know if you could, just a little bit more in

depth for the committee, could you describe some of the work that civil affairs forces do?

Additionally, I understand that many of the soldiers in the civil affairs training are in the Reserve component and with the Army in the midst of force restructuring, what is SOCOM doing to ensure appropriate acts of its civil affairs experts without excessive reliance on the Reserve component?

General KENSINGER. Well, sir, I will answer that question, sir, to start it off. And again, it is a great question and it is one that comes up almost on a daily basis. Civil affairs is doing a tremendous job in theater. I would characterize their missions, kind of, in three major functions.

One: they help the commander plan. As the conventional force moves into an area, they help him understand how to handle the population, how to handle the refugees, how to help with the reconstruction pieces at a tactical and an operational level for that commander.

Next they do coordination. They coordinate with the Non-Governmental Organizations (NGOs) and the Private Voluntary Organizations (PVOs) in the local area, the local contractors that are available, the local workforce that is available to help put in place those effects that that combatant commander wants to have in his battle space or in that area.

The third thing that they do is really help with the assessments. Being able to look to see what those cities, towns, population needs so that that ground force commander can help prioritize those resources to make those effects on the battlefield and help him accomplish his mission in the future.

As I said, 90 percent of the forces in the Reserves, we get tremendous support from the Office of the Chief Army Reserve (OCAR), in their support of our soldiers. We have one of the highest MOS queue, MOS qualifications for our soldiers in the Reserve. We are about at an 85 percent qualification. That is based on our schoolhouse, as General Brown talked about and the increases that we get from SOCOM to make those courses available for our Reserve soldiers, as well as the Army being able to provide us those soldiers.

Each one of those units is about 115 percent or more manned. People come into civil affairs because there is a great balance in what they do in the civilian sector, great similarity, to what we are asking them to do in the Reserve. Our civil affairs is only about 10 percent in the active duty. We have one battalion, and as I pointed to Congressman Hayes, we are increasing by two active companies and I have a proposal for General Brown and the Basis of Design (BOD) here in two weeks to show where we can grow that to a brigade level.

Fully supported by the Army and be able to provide those long-term capabilities for immediate set-up of civil affairs without having to immediately call for our Reserve forces. We take that kind of mission that the Army is looking at is being able to stand up for 30 days before we bring our Reserves on. We have taken that on and I have the proposal to give General Brown and the committee as how we should accomplish that in the future.

Mr. LANGEVIN. General Brown, do you have anything to add?

General BROWN. I think that pretty well covered it, unless you have other parts of the question. I would just add that I don't think you can overstate their contribution out on the battlefield.

As they continue to build the infrastructure and allow for stability both in Afghanistan, Iraq and around the world where we deploy them, they are just absolutely critical to the success of any mission that we take on. And quite frankly, these are great people, operate in very small teams, often out there by themselves, build tremendous relationship with the locals and then can prioritize and bring those necessary facilities, whether it be a medical fresh water, all kinds of power generation, all kinds of facilities to a little village far away that has never had that. So, their impact, they are small groups, but their impact is very large.

Mr. LANGEVIN. Very good. Well thank you. I just wanted to say that we realize that you were asked to carry out some of the most difficult missions that are at the tip of the spear. And this Congress is very grateful for your service, all of you. Thank you.

General BROWN. Thank you, sir.

Mr. SAXTON. Let me just follow up on Mr. Langevin's question, perhaps from a little bit different perspective.

The Operations Tempo (OPTEMPO) over the last period of time has been certainly different than it was before 9/11 and yet, our Special Forces organization, in terms of numbers of people and capabilities, is about the same as it was before 9/11. Does this create a strain and how long will we be able to continue this OPTEMPO given the new demands because of your successes; new demands because of your successes that have brought a new understanding of what Special Forces are about, how you can be successful? How long can we sustain this level of operation?

General BROWN. Sir, I think it is dependent upon what specific capability we are talking about. Based on the fact that our civil affairs forces are 90 percent in the Reserve, that brings one problem set, as does our psychological operation forces.

Our special forces, our Green Berets, right now that is manageable. Our deployments overall, are actually down at this point as the average number deployed, about 13 percent from last year at this time when we were engaged in our heaviest activities. So, we are very, very careful about prioritizing our deployments to make sure that they have a major impact of where we need to support the geographic combatant commanders in the Global War on Terrorism around the world.

Specifically, how long we can sustain, I think all of the programs that we have going on, increasing in the schoolhouse, increase of force structure, trying to get at those specific instances where we do have some shortcomings, I think those will help us sustain this fight for quite some time. Let me see if these guys got any——

Admiral CALLAND. Mr. Chairman, I would just like to say that naval special warfare has historically, at least, from the time of 9/11 deployed, like the Navy does: regular six month deployments on rotation, so we are a deploying force, so to speak. And we average at about 25 percent of our operators deployed at any one time.

We have experienced a recent surge to where we have pushed additional forces forward and increased our deployments. And today we are at about 34 percent of our deployable force currently

deployed overseas. Obviously that puts us from one in four, essentially six months deployed; 18 months back rotation, to a one in three rotation.

It does create some degree of strain, it is manageable over time, but I would say that without significant impacts on retention and those kinds of things, we can sustain that for several years, I believe without seeing significant reductions in retention. I can say that our retention over a three year average is about 78 percent. It is a little skewed this year; we are at about 90 percent retention. But that is a combination of our officers and our enlisted together.

So, I think, as General Brown indicated, our deployments, we are busy, there is no question about that, we have increased the number of forces that we have deployed forward, in particular in Iraq and Afghanistan, but I think it is manageable up to this point.

Command Chief Master Sergeant MARTENS. Mr. Chairman, our troops are doing well out on the battlefield. They are doing what they train to do; they thrive when they are able to accomplish special operations missions out on the battlefield. And that is what most folks have waited an entire career to do and they are doing that over and over.

A big thing that we are taking a look at these days are validating each and every mission as troops go out the door and make sure that they are indeed, special operations forces' missions and that we are not spending time taking care of conventional missions out on the battlefield. When we are back here in the continental United States, or at forward operating bases overseas, we are engaged in training our troops and readying them for combat. And as they are engaged in those forward areas, we are making sure they are doing special operations work and that you are getting your money's worth out of them.

Mr. SAXTON. Mr. Secretary, Chief brings up a good point when he says we want to make sure that the missions are actually special operations missions. Have you looked to see if there are any missions, the special operators are doing that maybe somebody else could do?

Secretary O'CONNELL. We have, sir. And, in fact, General Brown I think would agree. The Secretary of Defense pushes us a lot. He goes through, without giving away anything——

Mr. SAXTON. Pushes everybody and that is a good thing.

Secretary O'CONNELL [continuing]. But the joint staff and the combatant commanders, the staff of Office of Secretary of Defense (OSD) go through a very detailed procedure as was mentioned here by several of the gentlemen before a deployment. All the specifics of a deployment are very carefully looked at personally by the secretary.

There are senior representatives from the joint staff, often the chairman and the J3 are sitting there along with various undersecretaries and occasionally assistant secretary level. Each deployment is looked at in rather excruciating detail to include on the Reserve side or National Guard side, the very specific questions of, "When was the last time that unit was called up? And what were they called up for? And what actually took place?"

So, the secretary has very clear visibility down to, indeed, very small units as to what the status is. So, he is able to watch that

OPTEMPO very carefully. He also, in terms of the mission, will ask very clearly, "Is this the right mission for this particular unit?" be it a special operations unit to include civil affairs and PSYOPS. He has in several cases, I believe, Georgia being the most recent example, where special operations forces were doing certain training that he felt could be done by other forces and in fact, that was turned over to conventional forces.

But, yes, we do look. One of the problems with the OPTEMPO is that the more successful these people are, the more in demand they are.

Mr. SAXTON. That is true. And that is what has happened, obviously.

Secretary O'CONNELL. Yes, sir.

Mr. SAXTON. General Brown, any missions that you feel like maybe could be done by others?

General BROWN. Sir, it is kind of like Mr. O'Connell said, we look at everyone very carefully. And any mission that I take up to the department or the Joint Chiefs of Staff (JCS) and say, "Hey, we think a conventional could better do this mission or should do it" we get great support.

So, we really have an opportunity to pass those missions to the conventional forces. It is a fine line. We want to ensure Georgia's trained and equipped, which Mr. O'Connell brought up, and has been widely reported. That is an interesting one because we went in and started that and so, thereby given our special forces guys that would routinely operate in that AOR, the opportunity to go in and use their language skills, build the relationships, start the training, build the ranges, do what S.F. guys traditionally do and then we brought the Marines in to take the long haul.

And quite frankly, we got the value of doing those things that we want to do: our cultural awareness, our language skills, our working with foreign forces and then the Marines came in and completed that mission and did very well. So, that is kind of an example that we look at a lot of our different missions with to see if it is possible that we can still get value out of them and pass them to the conventional force.

Mr. SAXTON. Let me ask a question of either you, General Brown, or anybody that wants to answer it. The War on Terrorism has created a need for a different culture and you all represent that culture. When you are deployed, as part of your daily routine, somebody has to make decisions about ongoing operations.

During the last couple of years I have made it my business to talk to as many as operators as I can, and sometimes I get the feeling that the timeliness of decisions inhibits certain operations. Do you know what I am saying? And so I am wondering if you have the authorities to make the decisions that you need to make. And also, on down the chain of operational command, how it is decided as to when an operator is capable or able or authorized to make a decision on operational stuff?

General BROWN. Great question, sir. As you know, all of the forces that we have deployed around the world today are in support of one of the geographic combatant commanders.

The best way to use special operations forces are great NCOs and Army, Navy and Air Force folks that are on the ground is to put

the decision making at the lowest possible level. They are very, very capable.

Part of our training we emphasize decision making, we emphasis out-of-the-box thinking. All of exercises and all of our training programs are built so that we force them into situations where they have to make decisions every single day.

And so the correct way to do a special operation is to get the decision at the lowest possible level and usually, that quite frankly, gets down to the senior NCO at a team or that team leader down at a Special Forces Operational Detachment-A (SF "A" team) or at a SEAL team.

There are different mechanisms and different AORs and every situation is different as to what their authorities are once they are out there operating. Obviously in a mature theater such as Afghanistan and Iraq, those are pretty well in concrete now as to who can make what decisions; in other areas it is not as clearLY based on the chain of command at that time. Let me see if any of these other gentlemen want to——

Admiral CALLAND. Sir, I would just like to make a comment that my experience in Afghanistan in the early days when we stood up was that in order to be successful in operations like we are being called to do, which are essentially finding individuals and hunting down small groups, it is all about speed. And in order to be able to have that speed, you could follow business models of how they have flattened organizational relationships in order to be able to get their product to the marketplace quicker. So, just as General Brown indicated, to be able to push the authority down, flatten the organizational structure out, to allow those commanders, and giving them the authority to make the decisions and make the calls on their own, is what works.

It worked in Afghanistan. I had two subordinate commands initially and then combined them into one. And then, we switched over and they worked for the Joint Task Force (JTF) 180 commander. But, I think that they had the authorities and the opportunity to make decisions quickly and to be able to act on them and I think that was the key to the success of those operations.

General KENSINGER. Mr. Chairman, if I could just add to General Brown and Admiral Calland's comments and really, it is to Secretary O'Connell's too, is it is a matter of doctrine, it is a matter the training that is going on and then it is the great confidence and success that these teams and individuals are having on the battlefield. And as every day goes by, we watch the authorities that are given to these operators at the lowest level and the increased responsibilities that they get.

So, I am confident that it is working. Those team members are making that integration with a conventional force on a daily basis and bringing us our great successes.

Mr. SAXTON. I was in a briefing earlier today with somebody from the Joint Forces Command world and they were showing me some charts about how the services used to exist primarily independently and then how they started another chart showing how they cooperated with each other and finally they got to a chart which had the four services smack dab together with SOCOM right in the middle of them.

And I kind of smiled when I saw it, but then I looked at it and I said, "They are trying to get to the point where we make decisions at lower levels, too." With the brigade combat team concept and all that. So, you have been a laboratory in a way, as well. And you should be commended for that.

The gentlelady from Admiral Calland's neighborhood has joined us. Ms. Davis you have some questions?

Ms. DAVIS OF CALIFORNIA. Thank you, Mr. Chairman and thank you to all of you for your service and certainly for being here today.

I wanted to thank you particularly, Admiral Calland, for your service with the Naval Special Warfare Command in San Diego. We will miss you there, but we certainly wish you the best as you move on to your new assignment and certainly to your selection as vice admiral.

Perhaps, Mr. Chairman, this isn't in line and you may have already addressed this issue, but I was wondering as that integration takes place with particularly the Navy and Marines special operations, what has been the biggest surprise? What did you not expect to happen that did? And is there anything that gets in the way of greater success than you have already achieved? And I think we acknowledge that there has been great success in that regard.

Admiral CALLAND. Well, madam, I would say that when you put two organizations like the Marine RECON and SEALs together, sometimes it doesn't always work out. The surprise for me was how well it worked, that the integration between those two organizations came together quickly. They worked together closely; they have integrated their battle staffs to work as one team. They are interoperable between their operators.

The Marine platoon, for instance and a SEAL platoon are interoperable. We don't integrate the shooters with each other, but they are fully interoperable. About three weeks ago we ran a full field training exercise that tested their capabilities to be able to work together as a deploying naval special warfare squadron and it was an outstanding exercise.

They would go out and for instance, conduct a mission, gain intelligence off that mission that would be turned right into another mission and have time-sensitive targeting that repeated over a three or four day period of time. I think it has added to the capability of the squadron tremendously and I am sure, as General Brown indicated earlier that they will be extraordinarily successful once they get overseas working together.

Ms. DAVIS OF CALIFORNIA. Thank you. I don't know if there is anything else anybody wanted to add in terms of some surprises that you have experienced as well.

Secretary O'Connell, at the last subcommittee that we had, we touched on TSWG and technical support working group. Could you give us your sense of how that is supporting the work of special operations?

I know that in the community that I have worked in in San Diego, there have been some frustrations and it was difficult to transmit that information to TSWG. What do you see that group doing and how is that actually proceeding in a way that is very supportive of your work?

Secretary O'CONNELL. Yes, madam. First, thank you for the question and thank you for your interest in that entire process. As you certainly know, and as other members of the committee may know, the Department of Defense (DOD) is the co-chair of that, state is the other chair. I think we have 82 different government agencies that are represented there.

In fact, yesterday I briefed Karen Tandy, administrator of Drug Enforcement Agency (DEA) and invited her into that entire process; she already has people in there. But, she is very interested in many of the technologies that have counternarcotics applications.

First of all, we run several seminars during the year when all members of industry are given very clear opportunities to come in and say, "These are our technologies that we believe have an application." I have to leave it up to the experts: those in law enforcement, those in the military that have special responsibilities to say, "Yes, this technology is immediately useable; we have the funding to proceed." And we do our best on that. We are certainly not perfect.

Anything that has an application into the counterterrorism missions, special operations or direct action missions to the U.S. Special Operations Command, they have full visibility into that process. I would offer you, madam, the full briefing, if you would like, over in Crystal City. It would take about an hour and a half.

I think you would be very impressed at how the process works. And if someone has a problem, don't hesitate to give me a call, because we certainly are interested in giving everyone a full and fair hearing.

We are very proud of some of the technologies that have moved into actual application. And if I could add one thing, in conjunction with the question from Representative Wilson, and sir, thank you for your son's service, we are most interested in doing anything we possibly can within the TSWG to defeat the Improvised Explosive Device (IED) problem in Iraq.

I recently met with several members that just returned from Iraq. General Schoomaker has created an IED task force.

Colonel Votel, who recently came back on that, has met with my senior Explosive Ordnance Disposal (EOD) personnel and I am the senior EOD adviser to the Secretary. We are looking at a whole range of immediate options in that particular arena, to include perhaps more of a joint EOD force.

And the members of the technical support working group have been tremendously helpful in that. The FBI has been great. Some of the forensic work has been absolutely superb. And I would be happy to make sure you get full visibility into what has been done. I think you would be very excited, very pleased and a good news story for your constituents.

Ms. DAVIS OF CALIFORNIA. Thank you. Thank you, Mr. Chairman. I would just mention I know earlier you had a discussion about individuals moving into the civilian sector into the private sector from the military and from the wonderful training that they received and I know that that is a big issue, certainly in the San Diego community. And so, we want to be certain that we have the incentives for people to stay and provide the great service and the

expertise, the intellectual capital that they have been performing in San Diego.

We welcome them in the private sector, but we also know that we need them to stay and we to make sure that those incentives are there. Thank you.

General BROWN. Could I answer that also?

I think one of the things that SOCOM does very well is go out and find merging technologies and get involved with it very quickly. And I would pass along to those folks that are frustrated that they can't get that stuff to us to look at that we probably haven't failed to tell industry this well enough, that would mean.

But quite frankly, we have a website. They can go into the SOCOM unclassified website. There is a portion of it that says, "How to show SOCOM your product that you want us to look at." We have an individual called the technical integration liaison officer that does nothing but ensure that industry members that want to demonstrate a product can do that. First through him, and then makes sure it gets to the right technical experts that ought to look at it. So, we are very aggressive about that. And I would pass on to those folks that get up on our website and take a look at that. And it will tell you how to show stuff to SOCOM.

Additionally, the IED thing is a big piece; we are working that very hard. We appreciate the work of the TSWG in the IEDs. That is one of the things that keeps me awake at night is how we are going to defeat these things. We are working technology solutions. Additionally, we are working TTPs: Tactics, Techniques and Procedures on how to defeat them. We have been out with some of our allies that have a little more experience than we do.

We have trained about 18 people in special operations and have sent them into the AOR to go out and talk to every special operations unit there to tell them the lessons learned from other countries, who have also had these kinds of problems. And additionally, we are linked very closely with the Army's tremendous initiative to take on the IED problem.

Ms. DAVIS OF CALIFORNIA. Thank you very much, Mr. Chairman.

Mr. SAXTON. Thank you, Mrs. Davis. Mr. Secretary, let me ask you this and it is related to the last question I asked, but what is the relationship between SOCOM Command and the CIA?

General Brown, I believe it was a little while ago noted how closely CIA and SOCOM special operations forces work together. And I guess the right way to ask this is, "What is the relationship? How does it work?" Are there any problems from an operational point of view?

Secretary O'CONNELL. The relationship between CIA and SOCOM exist at many levels. As General Brown mentioned in his testimony, sir, he has a number, I think almost a hundred interagency personnel, some from the Department of Defense, from various elements that support him directly.

CIA, as you may imagine, is not always very happy about identifying exactly where they have liaison officers or what they do, but let me assure you that at many levels of the Special Operations Command, that relationship exists on a formal basis. It exists in other ways that are perhaps, less evident.

I was one of the original members of the Office of Military Affairs at CIA. That was an effort spurred by the Congress to make a closer working relationship between the CIA and the military. Soon to be Vice Admiral Calland will occupy a key position at CIA shortly, while he is a special operations officer, he will be a Navy, or more of a joint staff rep in there. But you see the tremendous experience he brings on the special operations side.

At the lower level, I would defer to the operators on the ground, General Kensinger and others that have worked hand in hand with the paramilitary elements of the CIA and also those case officers.

We also work very closely on a whole range of technical issues that could certainly be discussed in a closed hearing. There hasn't been a time when I had a question, either policy or intelligence, that I haven't been able to get answered through my CIA member. And just let me finish by saying I work very closely with the CIA's counternarcotics center, with their counterterrorism center and with several other areas that have direct application to my portfolio within DOD.

That is the Special Operations, Low-Intensity Conflict (SOLIC) side and you may want to go more to the SOCOM side with General Brown.

General BROWN. I would just agree with everything that Mr. O'Connell said. We have great cooperation with the CIA at every level, out on the ground with our operators, where they run into each other. They both have an appreciation for what everybody is trying to do out there. And the relationship is very good as we operate on the battlefield.

Additionally, as we already mentioned, I have liaison officers from CIA at my headquarters. And additionally, I have tremendous access to Mr. Tenet and the leadership at the CIA. And every time that we have requested a piece of information or any issues, they have been very receptive.

Mr. SAXTON. Are there any command and control issues?

General BROWN. I don't believe there are any command and control issues. We don't command their forces or we don't put them under any of our JTFs or DSTOs.

Admiral CALLAND. Sir, if I may, Mr. Chairman. My experience on the ground in working for about a month with representatives from the CIA was that it was very clear in Afghanistan that we working together, but the senior CIA member on the ground never did anything without first consulting me.

I think he considered me, even though not in his chain of command, to be his commander. The relationship couldn't have been any better. We were both working very closely together and had the common goals to get the job done.

Mr. SAXTON. Great. Good news. I have two hardware questions. Does the MH–53 helicopter continue to be a viable system? Are you confident, General Hester, that the CV–22 will be an adequate and timely replacement, especially in light of the plans to cease further modernization of the MH–53?

General HESTER. Yes, sir. Our plans are right on track for replacing the 53 as it retires at the end of the decade.

There are options for us if we choose to do so or if there is a necessity to do so to add some lengthening maintenance to the MH–

53s and we will carry them out into the next decade. We don't foresee that as a necessity clearly at the moment. And we believe that the program, the CV–22s both developmental tests and operational tests will provide it initial operational capability somewhere out in fiscal year 2009.

Mr. SAXTON. Thank you. Let me ask a follow-up question on the XM–8 rifle. I was I guess a little bit surprised when I found out the M–4 had some weakness, a couple of weaknesses. Maybe I shouldn't have been, because nothing is perfect, but I admit that I was surprised.

I understand that from a special operator's point of view, maybe the XM–8 isn't so perfect, either. Can you discuss those issues?

General BROWN. First of all, I had just traveled through the Pacific, where I met with all of our special operators out there, our Green Berets on the ground and our SEASs and I will tell you that everyone one of them, to a man, loves the M–4 Carbine that he has in his hand today, has great confidence in it and at the same time is looking forward to what the next replacement is as these wear out and we go on to our next weapon, whatever that is going to be, as we go through this selection.

The M–4 has served us very well. We are very happy with the M–4. There is time-to-time a problem with it, as you are well familiar. But quite frankly, across the board, the M–4 is doing very well for us and we are very happy with it.

I am not an expert on the M–8 and do not know very much about it. I don't know if anybody here has a had a chance to shoot it or take a look at it.

Mr. SAXTON. Okay. Well, my reason for asking the question is that if there were a need to procure a Special Forces weapon, you would have some sympathetic ears around here.

So, anyway? Further questions? Mr. Wilson? Mrs. Davis?

Thank you for all being here. We appreciate it. This has been a good hearing. A very informational and thank you for being straightforward with us, as you always are. And we appreciated having you here today and we want you to know that you can count on us to do what we can here to be as supportive as possible.

We appreciate, more than we can express with words what you and the people that work with you and for you are doing for our country. And we will again, try to be as supportive as we can. And I think this is the age of Special Forces, at least from our point of view. So thank you and we look forward to working with you as we work through these issues.

General BROWN. Sir, thanks very much and on the 23rd of March I will have a bunch of our special operations operators up here to do a reception where the committee members, we would invite them to come out and shake hands and talk to these folks firsthand and get their opinions of how they see all these issues. We appreciate it, sir.

Mr. SAXTON. That is great and that is a reception we won't miss.

General BROWN. Thank you, sir.

[Whereupon, at 3:08 p.m., the subcommittee was adjourned.]

APPENDIX

MARCH 11, 2004

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 11, 2004

Statement of Chairman Jim Saxton
Subcommittee on Terrorism, Unconventional Threats and Capabilities

Subcommittee Hearing on Special Operations Command

Budget Request for Fiscal Year 2005

March 11, 2004

The subcommittee meets this afternoon to consider the fiscal year 2005 budget request of the U. S. Special Operations Command and to review the overall status of the Special Operations Command. I believe, and that belief has been reinforced by my extensive travels of the last year visiting special forces troops in the field, that the Special Operations Command is the most vital and critical player in the ongoing war against terrorism. Since the formation of this committee last year, we have worked closely with the command and followed with great interest its many successes: some widely publicized but not credited to special forces, and others not widely known at all. More than any organization I've ever seen, special forces are content to

accomplish the mission and let someone else take the credit. You truly are the Quiet Professionals.

Special forces not only lead on the battlefield but also in their method of prosecuting war. Since the command was created in 1987, SOCOM has become the model of not just joint interoperability but true joint integration and interdependence of fighting forces. Indeed, SOCOM and its subordinate commands are a model the Department of Defense can turn to as an example of how future forces from all services will fight and succeed on the battlefield. SOCOM is a true transformational template: cultural change is embraced; technology is tested, then employed or discarded, as appropriate; and new methods of operation are routinely attempted with command support.

Many forces and nations throughout history failed to prepare for the future they could not predict. We must develop a strategy that provides security and peaceful stability not only for this great nation but also for much of the rest of the world. SOCOM has and will continue to be an essential element in providing that security. The men and women of SOCOM literally thrive in those ambiguous environments. They have proven time and time again the resourcefulness, flexibility and adaptability that are signature to

Special Operations. It is certainly fitting that the special operations symbol is an ancient spearhead, because members of this command are leading the Global War on Terror and are literally at the tip of the spear for this nation at war.

No one questions the great achievements of US special forces in our recent conflicts in Afghanistan and Iraq. And few question the wisdom of increasing the capability of the command to enable it to pursue a sustained campaign against the terrorist threat around the world. I certainly support SOCOM's central role in the war on terrorism. I am concerned, though, on one point. Are we truly committed as a nation to using these elite forces in all appropriate scenarios? I have to ask whether we have both the statutory authorities and internal administration processes established that will allow quick deployment of special forces units when appropriate. In other words, is the administrative approval process as agile and free from turf battles and red tape as the forces that are headed into the fight?

Secretary O'Connell and General Brown, we truly are here to help you and the warriors under your command. We look forward to your testimony.

Testimony Before the House Armed Services
Subcommittee on Terrorism, Unconventional Threats and Capabilities

By
Honorable Thomas W. O'Connell
Assistant Secretary of Defense
Special Operations / Low-Intensity Conflict

March 11, 2004

Mr. Chairman, and members of the Committee, I would like to thank you for giving me the opportunity to speak to you about special operations and the war on terrorism, and to share with you our thoughts on the challenges we'll face together in ensuring that our forces are prepared to meet our national security requirements.

As you know I exercise civilian oversight of special operations and low-intensity conflict activities of the Department of Defense. One of my jobs is to ensure that special operations forces (SOF) are appropriately employed and senior policy makers understand their capabilities as well as their limitations and also the risk that some missions might entail. Not only am I an advocate and a defender of the U. S. Special Operations Command (USSOCOM) and SOF, but I am also charged with making sure that SOF continues to be the best trained, best equipped, most flexible and effective fighting force available to our country. Representatives from my office regularly spend a significant amount of time at USSOCOM headquarters in a joint effort to develop the SOF program and budget. I actively participate in the USSOCOM Board of Director's meetings, the Command's executive resource forum. This joint effort produces a SOF program and budget that

stresses force readiness and sustainability, provides sufficient force structure to meet the demands of the geographic warfighting commanders and the Commander, USSOCOM in his role as a supported commander.

I am also proud to sponsor the Combating Terror Technology Support Program, through which I maintain Executive Direction and Proponency for the Technical Support Working Group or TSWG, which addresses the nation's interagency combating terrorism requirements. We will continue to serve the technology needs of the warfighter in eliminating the threat itself. The Secretary of Defense has noted repeatedly that to address any of a myriad of threats we shall be facing, it will be necessary to shorten the decision cycle for force definition, equipping, and deployment. Through its numerous requirements-driven successes and by continuing to reflect partnered cooperation across its subgroups and among Federal agencies, the Combating Terror Technology Support Program has shown it can meet that expectation.

I believe that the United States is at a critical moment in the war on terrorism. We have realized initial successes and achieved a degree of momentum that together support a general assessment that we are making progress in winning this war. But sustaining that momentum and continuing the successes against terrorists and their supporters now and into the future is just as critical.

For the past two-plus years we have examined and spoken about how the attacks of 9/11 have changed how we define "defense," and how, as a

consequence, the war on terrorism is fundamentally a different type of war than those we've fought before. Prior to then we perceived and responded to the threat of global terrorism in terms of transnational criminal activity, albeit politically or religiously motivated. While SOF were certainly a part of the equation, the requisite SOF posture of that time is one we would hardly recognize today.

Indeed, that is true of the entire military and the entire concept of national defense. Prior to then we were geared to defend against a state projecting force across great distances, and we built extensive capabilities to provide us early warning and tools to deter aggression. But the potential destructiveness of an attack of the type we suffered on 9/11 means that we are no longer afforded an opportunity to determine an "appropriate response," nor make a clear determination of when decisive action is too little or too late. For reasons we all understand, SOF have become a critical military tool in taking the war to the terrorists before it can be fought on our own soil or that of our allies.

SOF are uniquely qualified for that mission. Because of those qualifications and the demands of the war on terrorism the Department of Defense has been structuring and shaping SOF in different ways. While SOF were originally conceived to be used as forces for supporting or leveraging larger conventional forces in battle, or for undertaking discrete, limited strategic missions, the new reality has given SOF a prominent, front-line, essential role in the defense of our nation. This change was the impetus for the shift of USSOCOM from not only a supporting command but also a supported combatant command in the global war on terror.

This means SOF will continue to support regional commanders, while also at times being supported by other combatant commands. SOF are still the first in and last out in many contingency operations around the globe. SOF must be ready to act at any time, in all environments, overtly or clandestinely; alone or in concert with other U.S. personnel and coordinating foreign forces.

Before I discuss further what has changed and what our new national security imperatives require of SOF, I want to note explicitly that one of the most important factors and essential considerations for us has not changed: the importance of the special operator. In terms of missions performed and in the qualities of the individuals who undertake those missions, the special operator is truly unique and requires a different type of mindset on our end in terms of planning and support. Our starting point has always been and must continue to be what we call the "SOF Truths," which are essentially easy reminders of the fundamentals: Quality is better than quantity. Special operations forces cannot be mass produced. Competent special operations forces cannot be created after a crisis occurs. And humans are more important than hardware.

Those truths have been reaffirmed by the superb performance of our special operations forces in Afghanistan, Iraq, Colombia, the Philippines and many other countries around the world. I am keenly aware of how very much the dedication and commitment of our special operations professionals are appreciated by every member of the political leadership.

Recently, I had the privilege to visit both SOF and conventional forces in Iraq. These forces make us proud – and should cause potential adversaries to pause before seeking to harm the United States. The commitment of SOF to pursuing terrorists to all corners of the globe is embedded in their SOF mindset. The experience gained in defeating the Taliban and disrupting Al-Qaida in Afghanistan, destroying the brutal regime in Iraq and aiding friends and partners in other corners of the globe, such as Colombia and the Philippines, has matured our war fighters to a keen edge. Our challenge is to maintain that edge, and it will require something different from us, as policy makers.

I also saw that the nature and importance of the new demands on SOF are apparent to the operators in the field, and they are clearly doing more with the additional manpower, funding and materiel we've given them to meet the new challenges to our national security. To meet that challenge there are necessary increases in support and training. This level of support is required to meet the challenges of the war on terrorism. The change from a regional, reactive posture to a global, proactive posture could not be achieved nor sustained with the levels of funding, materiel, and forces that we had before 9/11.

After an initial strategic review of SOF alignment with the new, proactive strategy, overall funding increased for FY 2004 by over 34 %. The global war on terrorism caused a significant increase in operational tempo for SOF and over 3,700 additional personnel were programmed to be added over the next five years. These increases are focused on fixed and rotary-wing

aviation, SEAL Teams, Civil Affairs (CA), Psychological Operations, and Theater Special Operations Commands.

The FY2005 President's Budget Submission for USSOCOM is $6.6 billion. This funding request will continue the modernization and transformation effort started in FY 2004. It will enable USSOCOM to: 1) transform SOF capabilities to better locate and track individual terrorists across the globe and conduct small surgical operations with minimal risk to the employed force; 2) maintain sustained operations in areas where terrorist networks are operating; 3) continue to invest in critical "low-density/high-demand" aviation assets that provide SOF with the mobility necessary to deploy quickly and to execute their missions quickly; 4) continue to invest in key command, control, and communications to more effectively support the war on terrorism; and 5) support the personnel USSOCOM has added to better support worldwide deployments and 24-hour-a-day operations.

This significant increase is essential to sustaining the necessary operations in the war on terrorism and to ensuring we can meet essential transformation requirements. Still, I can say that we are grateful for Congress' continued interest and support in sustaining the necessary funding for the mission, both in regular budgets and in supplemental appropriations.

I would like to conclude by highlighting the implications the posture, programming and policy for SOF in the war on terrorism have for all aspects of our nation's defense. SOF have always been the innovators for the larger military, and the SOF mindset has been the incubator of innovation. That is especially true today. With the shift from SOF being postured for reactive,

regional contingencies to being a global, proactive and preemptive force, we are witnessing a key process of evolution in SOF that may also signal a need for additional necessary changes in our larger military. As a key innovative force, SOF's direction can be a critical tool to inform the evolution of the larger military and support the transformation of our national defense as a whole in coming years. Thank you. I am prepared to take any questions you may have.

GENERAL BRYAN D. BROWN, U.S. ARMY

COMMANDER

UNITED STATES SPECIAL OPERATIONS COMMAND

Mr. Chairman and distinguished Members of the Committee, it is an honor and privilege to report to you on the state of the United States Special Operations Command (USSOCOM). Despite the many new and varied challenges we face, your men and women of USSOCOM are performing magnificently. Today's Special Operations Forces (SOF) are the most capable in the world.

Secretary Rumsfeld expanded USSOCOM's role to include leading DOD's military global war on terrorism (GWOT) planning effort, and commanding select GWOT operations. In addition, we maintain our world-class ability to organize, train, and equip SOF as originally mandated by Congress. USSOCOM's special operators, highly trained and armed with the best equipment possible, are defending our Nation far from America's shores around the world.

We are standing side-by-side with our interagency, conventional, and coalition partners fighting the GWOT. SOF, in support of the geographic combatant commanders, have taken the offensive against the enemy, to strike him where he lives, to bring the battle to him, and to bring him to justice. Maintaining America's security and way of life, through operations far forward, cooperating with our allies around the world, and planning for sustained operations is today's reality. As we move into the future, our priorities remain the GWOT, readiness of our forces, and continuous transformation to match our capabilities with tomorrow's battlefield requirements.

Our skilled SOF warriors continue to achieve successes far beyond their limited number. SOF on the ground in Afghanistan are central to the reconstruction of infrastructure, organizing and assisting security and defense forces, providing critical information to the coalition hunting al Qaida and Taliban leadership, and helping the Afghan people prepare for independence. During combat operations in Iraq, two of the three major battle fronts were led by SOF, and we were closely integrated into the conventional force of the third. Today, SOF are integrated directly into United States Central Command's (USCENTCOM) force structure, taking the fight to the enemy, and helping create stability and opportunity for the people of Afghanistan and Iraq.

Global War on Terrorism

Success in GWOT - USSOCOM's number one priority is the GWOT. SOF, deployed in support of the geographic combatant commanders, have been involved in nearly every phase of the GWOT. SOF were the first forces on the ground in Afghanistan and Iraq, and were integrated with conventional forces more closely than in any war in U.S. history. The synergy from the joint, combined, and interagency efforts produced dynamic results on the battlefield.

Iraq - From the onset of planning, SOF were assigned key roles in Operation Iraqi Freedom (OIF): to prevent the Iraqi V Corps in the north from reinforcing Baghdad; to conduct special reconnaissance and direct action missions in western Iraq; to locate and destroy Iraqi mobile missiles; to support Combined Forces Land Component Command movement from the south toward Baghdad; to conduct support and stability operations throughout the country; and to interdict borders and lines of communication. SOF were also assigned missions to seize key airfields which they accomplished through

conducting airborne parachute assaults. SOF were critical to the capture of most of the "deck of cards" key personnel within the Iraqi regime, and they are still on the ground capturing high value targets today. SOF seized and protected sensitive areas and prevented Sadam Hussein from creating an ecological disaster by dumping massive quantities of oil into the Arabian Gulf and lighting oil fields on fire as was done during DESERT STORM. Following the collapse of Sadam's regime, SOF have continued to play a major role in stability operations with the long term goal of assisting in the building of a free and democratic Iraqi nation.

In northeastern Iraq, the Combined Joint Special Operations Task Force-North (CJSOTF-N) conducted unconventional warfare, special reconnaissance, direct action, and call-for-fire missions against Iraqi forces arrayed along the "Green Line." This task force, designated Task Force (TF) Viking, was commanded by a special operations officer, and was under the operational control of SOCCENT.

TF Viking's first order of business was unconventional warfare. U.S. Army Special Forces (SF) infiltrated Iraq and linked up with Kurdish military and political leaders to assess their capabilities and begin the campaign. Beginning on March 22, special operations MC-130 Combat Talons flew through heavy Iraqi anti-aircraft fire and landed a contingent of SF teams and U.S. Air Force Combat Controllers. Rapidly expanding, TF Viking grew to more than 50 individual Special Forces A-teams (ODA) in the northern area of operations.

TF Viking integrated Kurdish Peshmerga allies, with the U.S. Army's 173rd Airborne Brigade and the U.S. Marine Corps' 26th Marine Expeditionary Unit, all under the operational control of Special Operations. This coordinated offensive effort included

crushing 700 entrenched Ansar Al Islam fighters linked to Osama bin Laden. TF Viking used close air support to mount a successful offensive against Iraqi armor and artillery, and took the city of Kirkuk by force. This superb combined and joint force also negotiated the orderly capitulation and occupation of Mosul and secured the northern oilfields.

The Combined Joint Special Operations Task Force – West (CJSOTF-W) was tasked with denying the Iraqi military their ability to launch missiles into neighboring countries or coalition formations. CJSOTF-W's area of responsibility included the entire western desert area and all of the landmass from Baghdad south to the border of Kuwait. In the west, CJSOTF-W controlled a combined and joint force. In the south, SOF were integrated directly into the conventional force's operations.

The mission in the western desert area was to deny the Iraqi military their ability to launch missiles into neighboring countries or coalition formations. SOF were flown into the west using MC-130 Combat Talons, MH-47Es, MH-60Ls, MH-60Ks, and MH-60 direct action penetrators. The effect of conventional and SOF air and organic fire support to SF teams on the ground, particularly in the early days of combat action, allowed the CJSOTF-W to overwhelm the Iraqi military and dominate the western desert.

SOF successfully captured and controlled key infrastructure to include a key dam, vital lines of communication and airfields in the west. Using Army Special Operations helicopters, conventional tanks and mobile rocket launchers, SOF were able to dominate the Iraqi military in the western desert and support conventional forces as they moved on Baghdad.

In the southern area between the Kuwaiti border and Baghdad, the primary missions of CJSOTF-W were strategic reconnaissance and unconventional warfare. SF

teams were inserted deep into Iraq by U.S. Air Force helicopters and quickly conducted reconnaissance of key locations. This information, passed on to ground conventional maneuver commanders, was a significant contributing factor to the speed and audacity of the ground campaign. Other SF teams dispersed throughout the area and began to work with Iraqi nationals sympathetic to the coalition cause. These teams identified and rooted out Fedayeen Saddam, Ba'ath party members, regime death squads, and other terror cells.

The Naval Special Warfare Task Group (NSWTG) was given the task of securing strategic targets in the Iraqi littoral areas. This area was important because of oil terminals, the oil metering and manifold stations, and the two oil pipeline support valves. In addition, this was the initial avenue for providing seaborne humanitarian aide to Iraq.

Under cover of darkness, U.S. Navy Sea, Air, and Land (SEALs) swept down from helicopters and boats to secure five targets in unison. In less than 40 minutes the critical nodes were secured and the threat of an ecological disaster was eliminated.

Following these successful missions conducted on the first night of the war. NSWTG quickly moved into position to support the requirements of both land and maritime commanders. They assisted in safeguarding the waterway leading to the city of Basrah, and helped clear the waterway and port of Umm Qasr. NSTWG was also vital in securing the U.S. Marine Corps' Marine Expeditionary Force's lines of communication and logistics, which allowed the Marines to conduct their offensive movement toward Baghdad.

Afghanistan – The Combined Joint Special Operation Task Force – Afghanistan (CJSOTF-A) is the special operations component of Combined Joint Task Force – 180.

CJSOTF-A is working to rebuild infrastructure, and establish a positive rapport with the local populace. They are also directly involved in operations against anti-coalition forces within Afghanistan.

Deployed in small detachments throughout Afghanistan, SOF are working directly with the Afghan National Army, conventional U.S. forces, and local governments. This close working relationship allows SOF to identify problems and work solutions with local governments. This relationship also allows SOF to gather information about anti-coalition efforts invaluable to our long-term efforts.

One of the primary goals of CJSOTF-A is to capture or kill al Qaida and Taliban forces. SOF, together with Afghan National Army units, other coalition partners, and conventional U.S. forces have conducted multiple operations throughout Afghanistan. These operations resulted in the capture of numerous anti-coalition forces and the destruction of hundreds of weapons and thousands of pounds of enemy explosives.

Psychological Operations - Dissemination of truthful information to foreign audiences in support of U.S. policy and national objectives is a vital part of SOF's effort to secure peace. Culturally oriented psychological operations (PSYOP) units with selected language skills are supporting commanders and other U.S. government agencies in operations ranging from humanitarian assistance to weapons collection. Additionally, our PSYOP forces have an aggressive program of providing handbills to children explaining the threat of unexploded ordinance and minefields. These forces, along with SOF civil affairs units, are force multipliers. They use nonviolent means in often violent environments to convince enemy, neutral, and friendly nations and forces to take action favorable for the U.S. and its allies.

Civil Affairs – Civil affairs forces are key to our long term success in the GWOT. Civil affairs specialists can quickly and systematically identify critical requirements needed by local citizens in war. They can also locate civil resources to support military operations, help minimize civilian interference with operations, support national assistance activities, and establish and maintain liaison dialogue with civilian aid agencies and civilian commercial and private organizations. They help commanders in the field meet their moral obligations to the civilian population.

Civil Affairs forces are currently working with local governments of Iraq and Afghanistan, other government agencies, and international humanitarian organizations to rebuild infrastructure and restore stability. They are repairing wells, providing food to hungry children, bringing medical care to families, and are hard at work helping rebuild school systems and stem the tide of radical thought through education.

Lessons Learned – The USSOCOM team continues to meet and exceed all expectations and achieve remarkable results on the battlefield. Because of our heavy engagement in both OEF and OIF and other significant efforts in support of the GWOT, SOF are learning many important lessons. We are incorporating these lessons into our future activities in order to ensure our joint team remains decisive. Some of these lessons learned include:

1. SOF training and doctrine were proven effective. There were many instances where our special operators on the ground, sea, and air identified previous training and exercise programs as the key to their success. They were able to draw directly from skills developed through SOF training programs to accomplish missions. Specifically,

they commented on the "out of the box" thinking and problem solving required in the training programs.

2. SOF/Conventional force integration is critical. SOF apportioned to CENTCOM were directly integrated into all phases of the effort. The interoperability of SOF forces reached new levels of performance. SOF and conventional forces under the command of CENTCOM were integrated at the staff level and interoperable at the tactical unit level in both planning and execution. This made both SOF and the conventional forces much more effective.

3. Engage and deploy SOF early. SOF were assigned key responsibilities to prepare the battlespace for conventional land forces crossing into Iraq, to prevent the launch of Iraqi surface-to-surface missiles, and to fix Iraqi forces in the north. Our capability to insert key units early allowed coordination with coalition forces, facilitated the security of key lines of communication, and aided in the delivery of follow-on forces.

4. Blue Force Tracking (BFT) is a critical capability. We were able to provide superb situational awareness of SOF internally and with our warfighting partners – on the ground, sea, and air due to proactive fielding of BFT beacons. This program will reduce the incidence of fratricide and greatly enhance our situational awareness on a fluid and dynamic battlefield.

5. SOF logistical support needs improvement. SOF by nature have unique logistical requirements and a limited organic support structure. Support from the Services is critical to sustaining SOF on the battlefield. USSOCOM is working closely with the Services to continue positive momentum on SOF logistics support issues.

6. Fratricide is still a problem. Although we have come a long way in protecting our forces with BFT, it alone is not a panacea. USSOCOM is engaging the Services and industry to identify technology to further prevent fratricide and protect our most precious asset – our warriors.

USSOCOM focus and direction - When USSOCOM was established by the Congress in 1987, its primary role was to support the geographic combatant commanders by providing them with trained and equipped special operations personnel. Now USSOCOM's primary focus has shifted to the GWOT – we are at war. While the command continues to function in a supporting capacity for the geographic combatant commanders, the Secretary's guidance included an additional role as a supported command for planning DOD's military effort in the war on terrorism. In order to effectively fulfill this new role as a supported command, we have reorganized our headquarters with the creation of the Center for Special Operations (CSO).

The CSO is a joint and interagency directorate with responsibility for war on terrorism-related operational issues. By transforming the headquarters, USSOCOM ensures it is postured to perform its new role as a "warfighting" command while maintaining its Title 10 responsibilities for a world-class capability to train, man and equip our forces.

We are standing up a Joint Task Force Headquarters which will allow the capability for seamless planning and execution of operations that span the spectrum of conflict. This new structure will provide USSOCOM the flexibility to transition to a Joint Special Operations Task Force. Essentially, our newly created CSO serves as USSOCOM's new "warfighting" hub. Free of administrative functions, the Center's sole

responsibility is planning, supporting, and executing special operations in the war on terrorism.

Supported vs. supporting command – The mission of USSOCOM changed to include planning direct combat missions against terrorist organizations around the world and executing those missions as the supported Command when directed, while maintaining the role of force provider and supporter to the geographic combatant commanders. The designation of USSOCOM as the "supported command" does not relieve USSOCOM from its responsibilities to provide highly trained and capable forces to the geographic combatant commanders.

The geographic combatant commanders will normally execute operations as the supported commander in their theater of operations. However, when directed by the Secretary of Defense, the Commander of USSOCOM will serve as the supported commander for specified operations. The designation as supported commander allows for centralized planning, expands options for mission execution, and permits a more flexible command relationship structure.

Establishment of the USSOCOM Joint Operations Center (JOC) greatly increased the capability of the headquarters to monitor and, when directed, to command and control GWOT operations. Real-time BFT and unmanned aerial vehicle feeds combined with web-based technologies provide detailed situational awareness. Use of the Defense Collaborative Tool Suite (DCTS) enables real-time simultaneous coordination with geographic commanders, agencies, the Joint Staff, and others globally. This greatly reduced planning and execution timelines.

The CSO is enabling us to meet new requirements associated with the GWOT. Responsibilities in the CSO include reviewing global strategies, development of courses of action, and formulating recommendations for operational force employment by the Commander, USSOCOM through the Chairman of the Joint Chiefs of Staff to the Secretary of Defense. The CSO can plan, direct, monitor and assess combat operations directed against selected targets anywhere on the globe.

Intelligence - Practical experience and our own exercises have demonstrated the counter terrorism problem set is, at its very core, an intelligence based problem set. In other words, we have to find out *who* the bad guys are, *where* they are, and have the right forces in the right place at the right *time* to capture them. Essential to the desired end state is immediately actionable and accurate intelligence predicated by expert intelligence analysis. Unlike the Cold War where it was easy to find the large mechanized force that was hard to kill, the terrorist is very hard to find and comparatively easy to capture or kill.

USSOCOM in coordination with the Undersecretary of Defense for Intelligence and the intelligence community is developing an all encompassing intelligence, surveillance and reconnaissance (ISR) strategy. This strategy will develop the kind of capabilities, like signals intelligence (SIGINT), imagery intelligence (IMINT) and unattended sensors that channel the proper intelligence information to our analysts and operators so we can capture terrorists regardless of where they are on the globe. This persistent ISR concept is a combination of tireless analysis, human intelligence (HUMINT), and SOF focused ISR systems that will dwell on a target for as long as the

mission requires. We must be proficient to take the fight to the terrorist before he has the opportunity to strike.

One of the avenues for ensuring robust intelligence is to have a strong interagency relationship. At USSOCOM we have over 100 interagency representatives tightly integrated into our GWOT efforts, significantly supporting our goal to find, fix and finish the terrorist threat.

Readiness

Force readiness is a SOF priority and is crucial to mission success. People, training, and equipment are key factors that determine SOF readiness.

People – SOF are made up of some of America's most dedicated men and women from all of the Services. They are mature, high-caliber professionals with intelligence, stamina, problem-solving skills, mental toughness, flexibility, determination, integrity, and extraordinary strength of character and will.

To accomplish SOF missions, highly specialized skill sets are required, including mastery of technology, cultural and regional awareness and expertise, and skill in both low-tech as well as high-tech solutions. To achieve the required level of proficiency and guarantee SOF relevance, recruitment, accession, development, and retention of the force must be closely managed.

A small number of people, carefully selected, well trained, and well led is the key to our quality force. However, we must have the correct mix of active, reserve, and National Guard personnel to meet the challenge. Our current operations tempo is sustainable and programmed manpower increases will improve our capability to meet the demand on our force. Areas of concern include our U.S. Army PSYOP and civil affairs

forces where 96 percent of the force is in the Reserve Component or National Guard where long term mobilization is difficult. To improve these areas over the next five years we are adding four Reserve and two Active PSYOP companies , , two Reserve civil affairs battalions, and two Active civil affairs companies.

Another concern is combat power and our ability to move on the battlefield. We are addressing these areas by adding two U.S. Navy SEAL teams (Active), and one U.S. Army MH-47 aviation battalion (Active). We are also adding four additional U.S. Air Force AC-130 gunships, ten MC-130 Combat Talon II aircraft and associated personnel to support forward deployed and rotational requirements while maintaining our training standard. We believe *people are more important than hardware* and closely monitor our deployment schedules to ensure we care for both our military force and their families. However, adding SOF is not a short term fix.

The projected force and equipment additions do not provide immediate relief because *SOF cannot be mass-produced*. The service members who volunteered to join SOF following the events of September 11th 2001, and successfully completed the arduous SOF selection and training regimen, entered SOF's deployable force over the past few months. Since competent SOF cannot be created immediately, we must plan ahead to create units sufficient in size, capability, and speed of response to meet our requirements. It is also critically important that we are able to retain these individuals who have vast expertise and experience, especially as they become retirement eligible at the peak of their value to the Armed Services. Retention of these highly qualified personnel is critical and the competition with the civilian world has never been greater.

Budget – Our FY05 budget request is $6,566 million or 1.6 percent of the Department of Defense budget and some 48,000 personnel. Yet these limited SOF resources greatly enhance the effectiveness of conventional military forces by providing essential leveraging capabilities all the while ensuring that "must succeed" special operations are completed with the absolute certainty and professionalism the Nation demands. No where has the benefit of this powerful investment been clearer than during operations in Afghanistan, Iraq and elsewhere in the GWOT. However, SOF have been remarkably effective no matter what the nature of the conflict.

Long term success in the Global War on Terrorism depends largely upon our ability to rapidly employ a sustainable mix of capabilities with little warning. Terrorist threats today are elusive, pervasive, asymmetric, and adaptive. Non-traditional approaches to planning and tactics are required. To meet this challenge, USSOCOM refocused resources to address three vital challenges: planning and directing the Global War on Terrorism; preserving readiness of our SOF; and transforming SOF to more agile, adaptive, and responsive warriors.

SOF are comprised of specially selected, trained, and organized special operations Soldiers, Sailors, Airmen, and Marines from the Armed Services. Their training, education, maturity, initiative, and experience set them apart from all others in the Department of Defense. USSOCOM's FY 2005 President's Budget emphasizes the SOF philosophy of funding the right training and equipment for the right people, so they can arrive at the right objective, and most importantly, producing mission success. Fundamental to mission success is the readiness of our SOF warriors and their unique skill sets, including the

reserves and National Guard who fight side by side with our active duty forces. Our readiness efforts also extend to support programs for families of our SOF warriors.

USSOCOM faces a strategic environment characterized by rapid geopolitical change and technological advancement, evolving threats, and potential emerging new roles. These factors require innovative thinking and new ways to shape change to provide the widest array of options in protecting American's interests. To meet this challenge, USSOCOM is pursuing a holistic approach to transformation through training, organizational structure, and technology. Key resourcing initiatives identified by USSOCOM will support transformation of special operations in the realm of materiel, organization, training and doctrine. These initiatives include, but are not limited to: Naval Special Warfare's 21st Century realignment, Army Special Operations Aviation 21st Century reorganization initiatives, improved Theater Special Operations Command capabilities, enhanced training curriculums, maintenance and sustainment of key SOF assets, and providing the optimum mix of gear for our SOF operators.

The USSOCOM Fiscal Year 2005 President's Budget requests the resources necessary to continue to provide full spectrum, multi-mission global SOF that provide a comprehensive set of unique capabilities for the nation.

Acquisition – A real strength of USSOCOM is the Commander's acquisition authority, which is similar to that of the Military Departments. Among the responsibilities assigned to USSOCOM under Title 10, Section 167, is developing and acquiring "special operations-peculiar" equipment. SOF-peculiar equipment is based on technologies that enable our operators to become faster, stealthier, more precise, lethal, survivable, and sustainable. With exceptional support from Congress, the Secretary of Defense,

Services, Other Government Agencies (OGA), and our industry partners, these authorities have been instrumental in equipping today's world-class SOF team to perform a broad range of SOF missions.

Although our people are certainly SOF's most important asset, maintaining and improving materiel capabilities remains USSOCOM's most difficult challenge. Our near term objective is to continue to realign our requirements and programs to better address the Global War on Terrorism (GWOT) mission. We will be eliminating those systems that do not support the GWOT and using the saved resources to invest in future capabilities. Our programs must be transformational, not merely a reinvestment of what we are doing today. USSOCOM must continue to invest in making our SOF more capable in all tactical environments. Our current Flagship Programs, the Advanced Seal Delivery System (ASDS) and the CV-22 Osprey continue to be a very important part of SOF's future. Additionally, our Research and Development (R&D) activities are refocusing on discovering and exploiting technologies in the following areas:

Individual As A Platform – We have always said the individual is the indispensable element of SOF. In order to ensure we "equip the man" not "man the equipment", we are making the SOF Warrior System a Flagship Program. This will create the appropriate focus on every consideration affecting our warfighter: budgeting, recruitment, training, doctrine, and equipment. We need to develop enhanced protection, armor, lightweight sustainment systems, night vision devices and better weaponry. The SOF operator must be able to manage his signature in all environments and see the enemy regardless of concealment. We need to do this without increasing weight and complexity.

Power -- Power sources have been, and continue to be, both a major problem and critical need for SOF. A significant amount of the weight carried into combat is from batteries. SOF urgently needs power sources that are small, lightweight, and inexpensive while providing high power, long-endurance, interchangeability, and multiple recharging features. These batteries or fuel cells must give off little or no signature and offer the SOF user an extended operating capability without suffering degradation or requiring re-supply.

Sensors -- We will pursue a family of unmanned, semi-autonomous or autonomous systems (air, sea, land, and in the future, space) ranging in size from tactical to micro and nano, accompanied by persistent intelligence and denied area access technologies to meet the needs of SOF operators. These systems must possess a reduced logistical footprint and withstand the rigors of various climates and operating environments.

Conclusion

Special operations forces are deployed around the world engaged in the global war on terrorism fighting for our way of life. Your continued support of our Soldiers, Sailors, Airmen, Marines, and DOD civilians is the foundation of our success. Thank you. I look forward to answering your questions.

FISCAL YEAR 2004 NATIONAL DEFENSE AUTHORIZATION ACT—DEPARTMENT OF DEFENSE SCIENCE AND TECHNOLOGY POLICY PROGRAMS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
SUBCOMMITTEE,
Washington, DC, Thursday, March 25, 2004.

The subcommittee met, pursuant to call, at 2:20 p.m. in room 2212, Rayburn House Office Building, Hon. Jim Saxton (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, CHAIRMAN, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. SAXTON. Today the subcommittee on terrorism unconventional threats and capabilities will hear testimony on the fiscal year 2005 budget request for the Department of Defense's (DOD) Science and Technology Program and plans and priorities for the future. We will discuss with the director of Defense Research and Engineering, Ronald Sega, the Military Department's science and technology chiefs, and the director of the Defense Advanced Research Projects Agency (DARPA), how the program supports the Global War on Terrorism, and what needs to be done to accelerate the identification, development and transition of advanced technologies that are critical to the defense transformation.

In 1983, then Secretary of Defense Casper Weinberger said: "we face the danger of losing our edge because we have not adequately replenished the reservoir of scientific concepts and knowledge to nourish future technologies. We must systematically replenish the science reservoir using the unique and diverse strength of the United States scientific community. Given the relatively long lead time between the fundamental discovery and applying such knowledge to defense systems, the true measures of our success may not be apparent for several decades. When the moment of truth, he said, arrives, we cannot afford to be found waiting."

President Harry Truman summarized the issue more succinctly in 1945 when he said: "no aspect of military preparedness is more important than scientific research."

President Truman and Secretary Weinberger's statements are no less true today. Technological superiority over our adversaries is the cornerstone of U.S. national military strategy. Historically, a robust defense science and technology program has been key to meeting the known needs of major capabilities providing the technological bridge to new weapons systems during periods of reduced

funding for development and acquisition and enabling the development of totally new operational concepts and capabilities that are as yet unforeseen.

For the past two decades, previous administrations and the Congress have faced the issues raised by President Truman and Secretary Weinberger. These issues confront the Bush administration and the Congress today: What should be the role of the Federal Government and the Department of Defense in supporting the science and technological research and development? On what technologies should the defense S&T program focus? What is the appropriate level of funding for the program? How are we changing the program to support the Global War on Terrorism and defense transformation? How do we accelerate the transition of technology from the laboratory to the military user in the field? What is the importance of our DOD laboratories to the program? And perhaps among the most important, what is needed to ensure the development of the "best and brightest" young scientists and engineers who will provide our country and its Armed Forces the advances in science technology and advanced systems and capabilities that will ensure our national security?

To address these issues, we have a distinguished panel of witnesses from the Department of Defense. The Honorable Ron Sega, Director of Defense Research and Engineering; Dr. Anthony Tether, Director of Defense Advanced Research Projects Agency, DARPA; Dr. Thomas Killion, Deputy Assistant Secretary of the Army for Research and Technology; Rear Admiral Jay M. Cohen, Chief of Naval Research; Mr. James B Engle, Deputy Assistant Secretary for the Air Force Science and Technology and Engineering.

Gentlemen, we look forward to hearing your testimony. Dr. Sega, before you begin, I would like to yield to the ranking member for any statement he may have. My friend, Marty Meehan.

[The prepared statement of Mr. Saxton can be found in the Appendix on page 177.]

STATEMENT OF HON. MARTIN T. MEEHAN, A REPRESENTATIVE FROM MASSACHUSETTS, RANKING MEMBER, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. MEEHAN. Thank you, Mr. Chairman. I join you in welcoming our panelist and it is also great to see the Department of Defense's talented S&T team led by Dr. Sega. I would like to associate myself with the chairman's opening remarks and offer a few of my own.

I strongly support this panel's across-the-board efforts to promote S&T investment, especially in the fields that offer the promise of major advancements in the near or not too distant future. For example, chemical and biological research, nano technology, innovative propulsion, and various information technologies can give us the critical advances particularly in the area of surveillance, battle management and intelligence (Intel) collection. As we learned last year in testimony from General Brown, commander of the Special Operations Command, the fight against terrorism is, at its core, an intelligence-based problem.

I certainly agree that accurate intelligence and actionable intelligence are essential and I am interested in learning what we can

do to help make sure that we have the technological tools we need to gather this intelligence against terrorism. I would also be curious to know how our panelists think about which areas are more promising than others. Which areas are more important than others.

In fact, I think it would be useful for them to rank order each area so that we can get a better sense of the priorities of the department and learn why such priorities are or are not emphasized.

Again, Mr. Chairman, I thank you and join you in welcoming each of the members of the panel and look forward to hearing their testimony.

[The prepared statement of Mr. Meehan can be found in the Appendix on page 179.]

Mr. SAXTON. Thank you very much. We are going to recognize Dr. Sega to begin. I would just like to remark, yesterday I had an opportunity to address a group at lunchtime on the challenges of facing terrorism. During the question and answer period one gentleman said, as Marty just did, how important intelligence is. And he said in fact, in the War on Terror, there are three main aspects that are the most important: Intelligence, intelligence, intelligence. And then someone else remarked: Well, that is almost true. It certainly is intelligence, intelligence, and then the willingness to take action.

So I think that we are learning all about this war as we go along here. And it certainly is different than anything we have ever done before and that is why we depend on you.

Dr. Sega, and your colleagues to help us through these many issues. Thank you. Sir, the floor is yours.

STATEMENT OF DR. RONALD SEGA, DIRECTOR, DEFENSE RESEARCH AND ENGINEERING

Dr. SEGA. Mr. Chairman, members of the committee, thank you for the opportunity to appear before you today and talk about the science and technology (S&T) program of the Department of Defense. I request that my written testimony be submitted for the record.

Mr. SAXTON. Without objection.

Dr. SEGA. S&T remains postured to support both the near term Global War on Terrorism and the transformation of DOD. We are excited about the capabilities and possibilities that continue to be opened by S&T throughout the Department.

Secretary Rumsfeld stated in last month's fiscal year 05 budget testimony that the Department and Congress have a common challenge: To support the troops and to make sure they have what they need to defend the Nation in the years ahead. The Department's S&T program is vital to the support of our troops and simultaneously developing the capabilities for our future forces.

While there are still many challenges, I believe the S&T program has been productive over the past year and the increasing emphasis on accelerating transition of technology is showing positive results.

The President's fiscal year 05 budget request for DOD S&T is up approximately 1.5 percent in real growth from the fiscal year 04 President's budget request.

As the director of Defense Research and Engineering, serving the role of the Department's chief technology officer, I established five priorities. These priorities facilitate the Secretary of Defense's goals. Our research and engineering goals are as follows:

Number one, to integrate DOD S&T and focus on transformation. Here we have looked at three crosscutting initiatives and there are several service based initiatives that are also supporting transformation and the Global War on Terrorism and you will hear from the services shortly on those.

One of the crosscutting issues is the national aerospace initiative. Here we look at advancing high speed and hypersonic capabilities, space access, and space technology.

A second crosscutting area is energy and power technologies. Here the outcome is enabling a more electric force, improving the generation of power, the storage of energy, and the conversion of it to practical applications.

Third is surveillance and knowledge systems. Here we are providing the underpinning technology to enable an integrated C4ISR for the Department of Defense: Command, control, communication, computers, intelligence, reconnaissance and surveillance. Certainly as we go forward in the network centric approach to warfare we need information assurance and we will be talking about that more as we go along.

Number two, is to address the national security science engineering workforce. To begin to address these issues, within the past year the Department has increased the individual stipend and total number of national defense graduate fellowships. We are continuing to examine our future workforce needs to make sure that we will have the best talent available for national security research and development (R&D).

Number three, to expand the outreach to the combatant commands and the intelligence communities. Our joint warfighting science and technology plan has been changed and it now aligns with joint functional concepts. The connection between the joint staff, combatant commands and the research and engineering community has been strengthened. We have increased the number of advanced concept technology demonstrations and they need a combatant commander for a sponsor. We have also increased the technology and Intel communities collaboration which helps in S&T planning.

Number four, is the enhancement of technology transitioning. The relevance of research and engineering efforts hinges on the rapid transition of technology to fielded military forces. In partnership with Congress we established the quick reaction special projects program, QRSP. It is a flexible continuum of technology transition projects that moves products from R&D to the warfighter quickly. And we have the flexibility within the execution year to act on new ideas and to respond to new needs of the warfighter.

QRSP is an important valued and important mechanism for technology transition. It includes three technology transition projects. One is a quick reaction fund. Those that have had the opportunity or will have the opportunity to look in the various displays here will see Dragon Eye. In this case this is a man portable unmanned aerial vehicle (UAV) that we brought the UAV community and the

sensor community together and integrated a small package that does a chemical analysis function, a collection of bioagents as well as a collection for radiological elements, if there are any, and a small camera all integrated in the same package. This was done in a matter of weeks to look at integrating these activities.

As we looked at addressing the issue of Operation Enduring Freedom (OEF), we went from basic chemistry and the thermobaric explosive to a fielded system in roughly 90 days. The work was being done at Indian Head one month after the laboratory work was basically brought to a point where we could decide on a candidate. Static testing was performed in Nevada and a flight test the following month. This was October to December of 2001, and fielded.

Second is technology transition initiative. One is a water purification pen developed with DARPA technology and we fielded 200 residual items in Afghanistan and OEF. Accelerated the production to about 2,500 units in fiscal year 03, and around 4,000 units in fiscal year 04. That is going from early discovery, residuals, to a transition program.

The third area is the defense acquisition challenge program. Out of the 300 roughly submissions, we selected 23 of those. One example is the restore effective survival in shock called RESUS, a polymerized hemoglobin which is able to help us in our battle casualty application.

We also have leveraged the Advanced Concept Technology Demonstration (ACTD) program to get the best technology to the joint war fighter in the shortest period of time. Other applications for technology and transition include man tech in Title III of the Defense Production Act.

Number five, in the priorities is the acceleration of technical support to the War on Terrorism. We formed a combating terrorism technology task force in September of 2001. Working with the leadership of the technical community, the services and agencies have brought together items that could be fielded quickly. The thermobaric weapon was one example that was brought forward in rapid time. A nuclear quadripole resonance system is another for the Navy during 2001. We continued that forum that now includes other agencies besides the Department of Defense, to look at technologies that could be accelerated. These are prioritized with the combatant commands.

Today we are in Phase III of that activity focused on force protection. We look at areas of improving ISR, improving electronic countermeasures, language translation aids. Another example of going from the technology in OEF of a phrasolator developed with DARPA technology now expands to not only a one-way translation into four languages to now many more languages. A two-way capability is on its way as well as automated translation from text in a local language into English, as well as biometrics to quickly help with the characterization in terms of facial, iris and fingerprint characteristics.

So in conclusion, the technology development results are largely achieved through long-term stable investment in science and technology. Although the fiscal year 05 President's budget request does focus on transformational technology its also contains the flexibility

to respond to near term requirements in technology opportunities. This balance has been and remains important.

I believe that DOD's successes in technology and transformation are significant. I appreciate the opportunity to come before you today to tell you about them. We appreciate the support the House Armed Services Committee has provided for the Department's S&T program. Thank you.

Mr. SAXTON. Thank you very much Dr. Sega.

[The prepared statement of Dr. Sega can be found in the Appendix on page 180.]

Mr. SAXTON. We will move now to Dr. Tether.

STATEMENT OF DR. ANTHONY J. TETHER, DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY, DARPA

Dr. TETHER. Thank you very much for the opportunity to testify on DARPA's efforts to develop advanced military capabilities.

I would like to request that my written testimony be put into the record.

Mr. SAXTON. Without objection.

Dr. TETHER. We have accomplished a lot over the past year. My written testimony details much of what we have done at the unclassified level. However, I would like to say that none of DARPA's accomplishments would have been possible without the outstanding support that we have received from this committee, in particular, and Congress in general. So I would like to take the opportunity on behalf of DARPA and industry and universities to thank you for this support.

I am not going to repeat my written testimony, but I do want to highlight a few topics.

One is transitioning technology. Transitioning technology is best described as a contact sport. You cannot do it effectively without getting intimately involved with the people you are trying to help. It does not work any other way. My priority has been to create a close working relationship with the services, the operators who are actually going to use this technology.

For example, we have a permanent representative down at Special Operations Command (SOCOM) in Tampa, and this has been a great way to get our technology into SOCOM and find out what SOCOM really needs in a rapid way and it has worked well over the past year. This is not unprecedented. DARPA did this once before in the early 1980's when we were building many satellites and we put somebody in the space division in Los Angeles. But we haven't done it for 25 years.

I also have a special assistant for space to coordinate all of our activities with Strategic Command (STRATCOM) and Air Force space command. The DARPA space program is well integrated with the rest of DOD's space efforts. Meetings are held regularly with Mr. Teets, General Lord, and Admiral Ellis, who is, for the most part, the real customer of our space efforts. I also have service liaisons from each of the services at DARPA. These are very senior officers, both in tenure and age at the 06 level who have a great Rolodex. These are people who know who the operators are. Their major role is to take the DARPA program managers to meet with the operators so that the operators can find out what is possible

or is going to be possible and more importantly so our program managers can find out really what the operators really think they need.

And it is working great. We have had several transition opportunities over the last year that would not have occurred without this program.

We are also working with the Army's rapid equipping force and the Marine Corps war fighting lab to quickly deliver needed capability to the theater in Iraq and Afghanistan. We talked about several of these yesterday, so I am not going to go over them again. But I do want to mention two that have been extremely effective and in a surprising way.

DARPA has a language translation program, which is operating in Iraq, and basically, we create an early bird in Iraq each morning. I gave, Gene, some copies of today's early bird. These are given out every morning in Iraq to the commanders and it enables them to read what is going on in the local newspapers and on local radio to find out what is going on in the country. You can imagine being in a country where you can't read the newspaper or understand the language and you are told to keep control of it, how valuable this input is.

In fact, what happened is that when we first got there, our forces were finding out about civilian casualties through this medium, and were able to get to other cities in Iraq and save quite a few children who were wounded in the skirmishes that were still ongoing.

Another technology that is being used in Iraq right now is DARPA has been developing a technology called command post of the future. This is basically an idea where each commander has a small little laptop and everybody is wired together to collaborate. Think of a John Madden type of thing. The commander says: My troops are here, I want to go here. Everybody see it at once. They can all chime in and they are distributed. This is being used in Iraq right now and being used, I am told, very effectively. They are not having to gather for meetings. They are able to make decisions fast and effectively. There are more efforts underway, but some of them are described in the testimony. Most of them we heard yesterday anyway.

Finally, I want to talk about one thing, the DARPA Grand Challenge, which some of you may have heard about occurred on 13 March. This again is the result of this committee. A few years ago you authorized DARPA to award prizes for major technical accomplishments. The DARPA criteria for the grand challenge was a simple one. That it had to be important to the national defense, it had to never have been done before, it had to be a tough problem that was not easily or cheaply solved with a work order or a contract. And more importantly we wanted to have something that anyone could participate from all walks of life. We were trying to reach out and find those people who would not ordinarily work on an important DOD problem and give them the motivation to do so.

Given congressional and department interests in unmanned systems, we decided to focus on autonomous ground vehicles and the challenge in this case was to build an autonomous vehicle that

could travel from roughly Barstow, California, to Primm, Nevada, in under 10 hours with only two commands: "start" and "stop."

This challenge fit the criteria and when we solve this, we will save American lives. Never again will we have a soldier like private Jessica Lynch have to risk her life driving a truck. It could be done totally autonomously. We have received a tremendous response from all across America. Over 100 teams applied, a rich diversity of talents. High schoolers, college grads, technicians and backyard mechanics, all throughout CONUS and even one from Alaska. All sizes and shapes of vehicles from a motorcycle to a 16-ton truck. And in the display out here we have some of those shown.

Even though no one won the prize—so we did not even have to give out the money—something really priceless happened. All across the country, thousands of people worked on and continue to work on an important DOD research problem and they are committed to solving a tough technical problem. For the most part these are people who would have never thought of working on a DOD problem, that it could be exciting. Their talent is something that we can tap into for years to come. And I know that this is an issue that both Dr. Sega and I are really concerned about, about the pipeline of talent to work on DOD problems.

We plan to run this grand challenge again in the fall of 2005 or the spring of 2006. Right now everyone is too tired to get serious about planning the next one. And the only thing I can say, the high school team from Palos Verdes, California, said: Look out because next time they are going to have seniors on their team.

With that, I will be glad to answer any questions.

Mr. SAXTON. Thank you very much Dr. Tether.

[The prepared statement of Dr. Tether can be found in the Appendix on page 197.]

Mr. SAXTON. Dr. Killion.

STATEMENT OF DR. THOMAS H. KILLION, DEPUTY ASSISTANT SECRETARY OF THE ARMY FOR RESEARCH AND TECHNOLOGY, DEPARTMENT OF THE ARMY

Dr. KILLION. Thank you, Chairman Saxton and distinguished members of the subcommittee. I appreciate the opportunity to discuss the fiscal year 2005 Army Science and Technology Program and the significant role that S&T is playing in supporting the warfighter today and achieving the army's transformation. I previously submitted a written statement and request it be accepted for the record.

I want to thank the members of this committee for your important role in supporting our soldiers who are now at war and for your support of the Army's S&T investments that will sustain the preeminence of our future soldiers. Your continued support is vital to our success.

We are a Nation at war. Army S&T is charged to provide America's Army with sustained overmatch in land combat. To do so, the Army S&T program retains a dynamic portfolio of technology investments that is responsive to the warfighters's needs both today and for the future.

The Army's S&T program is balanced to provide high payoff capabilities for the future force while seeking rapid transitions of critical technologies into the current force.

Army S&T is fully committed to providing our soldiers with the tools they need to survive and prevail in current operations. This is truly a joint activity and all of the S&T executives at this table have demonstrated their commitment to protecting our soldiers's lives with whatever technology we can each bring to the fight.

Based on sustained S&T investments over the past decade, there are numerous examples of technologies that we and our partners have introduced into the Global War on Terror. In the displays downstairs you may have seen or you can see some examples of technology that have come out of S&T in support of current operations. Such as interceptor body armor, the Humvee expedient armor kits, the Chitosin bandage and the omni-directional inspection system.

With regard to future force technologies, the Future Combat System (FCS) remains the highest priority for army S&T. We have about one-third of our budget invested in technologies that will help make FCS a reality. Although the FCS program has passed acquisition milestone B, transitioning from S&T into system development and demonstration, army S&T continues to play an important role in the FCS program by providing specific critical technology solutions for increment 1 and beyond.

As part of the milestone B decision, the Project Managers (PMs) for FCS identified 31 critical technology areas that need to be addressed. The technology solutions to address most of these areas come from the army's S&T community and through our collaboration with DARPA.

We are committed to the continued maturation and demonstration of these technologies for delivery to the Lead Service Indicator (LSI) prior to the FCS preliminary design review in 2005. To illustrate our progress, I would like you to take a look at the chart on the displays on the left and in the back. Several years ago, I put together a chart of this type with a lot of cartoons representing potential technologies for FCS. What this chart demonstrates is the progress that we have made in maturing and demonstrating these key technologies. They are not just cartoons anymore. They are real technologies that we are demonstrating at various levels of maturity that will help to enable the FCS capability by the end of this decade.

Let me highlight several specific examples. The lightweight cannon in the upper right. This is a video of a firing of a 120-millimeter cannon using a design that will be employed with lighter weight steel and demonstrated later this year.

The next video, the leader-follower convoy. This video illustrates potential contribution of ground robotics with a leading vehicle teleoperated from the middle manned vehicle in the convoy, and a third vehicle operating in a follower mode behind it. The benefits in terms of reduced manpower for logistics resupply are significant, though the challenges of unmanned ground vehicles (UGVs) remain, as experienced by Tony and his folk in the recent DARPA challenge. It was a nice setup, Tony.

Finally, a third video in the lower left is active protection against chemical energy weapons systems. You will see a couple of different rockets fired at this vehicle on the move. One is driven into the ground by electronic warfare, the other is intercepted by an active protection device that causes physical destruction. A new way to protect our soldiers and their vehicles without the need for having as much heavy armor.

The bottom line is we are delivering on the technologies that we have promised for FCS helping to make it a reality by the end of this decade. We have also maintained our commitment to basic research which produces new knowledge to fuel revolutionary advances and leap-ahead technology for the future. Technologies in the field today such as night vision devices, precision munitions, and body armor owe their existence to fundamental research that we conducted in the past. Research that we are conducting today in areas such as nano science, biotechnology, quantum computing and immersive environments will enable unique and in some cases unforeseeable capabilities for the future army.

I believe that innovation and invention are at least as often the parents of necessity as they are its progeny. No one really needed an automatic dishwasher a hair dryer or Lexis until somebody created them. Our job in part is to foster technological innovations that enable the warfighter to envision and leverage new technologies and new capabilities today, tomorrow, and in the distant future.

Finally, I mentioned earlier the support we are providing to current operations. That support certainly depends on the technological innovations we are able to provide to the warfighter. More importantly, however, I believe it depends on the expertise and commitment of our scientists and engineers. Perhaps the most important contribution that the S&T community continues to make is sending its scientists and engineers into the theater to see the real life conditions, assess the problems, and develop rapidly deployable solutions for the warfighter.

Their understanding of the Army's needs, knowledge of the threat, and recognition of technical opportunities makes them uniquely qualified to bring relevant technical solutions to the battlefield. Innovations such as expedient armor and bar armor for our Humvees, Strykers, and the Abrams tank were developed and tested very rapidly due to close collaboration between the scientists and engineers in our Army Research Laboratory, the Tank Automotive Research Development and Engineering Center, the Army Test and Evaluation Command and the program manager and our industry partners.

Individuals such as these supporting our soldiers really enable us to maintain and enhance our land combat advantage for today and tomorrow.

In closing, I would like to thank you, Mr. Chairman, for the opportunity to testify before the subcommittee and I would be happy to answer any questions you or the members may have.

Mr. SAXTON. Thank you very much, Dr. Killion.

[The prepared statement of Dr. Killion can be found in the Appendix on page 220.]

Mr. SAXTON. Admiral Cohen, please.

STATEMENT OF REAR ADM. JAY M. COHEN, CHIEF OF NAVAL RESEARCH

Admiral COHEN. Good afternoon Mr. Chairman and distinguished Congressmen. It is a great personal honor for me to be here representing the Department of Navy Science and Technology portfolio, and I wanted to also thank you and the Congress for the incredible support that you have given over the years. The results speak for themselves.

I have a written statement which I would ask could be made part of the record.

Mr. SAXTON. Without objection.

Admiral COHEN. And I just have a few verbal comments. Three years ago after the tragic events on the USS Cole, I testified and read a short e-mail that I received from a young man at Camp Lejeune, a young man named Jake who shared with me that his father was a Marine and went to sea on Navy ships and that Jake had an idea for how we might prevent future Cole casualties. And it was very touching and we responded to Jake.

And we went ahead at the time and took the work that the defense threat reduction agency, working in conjunction with the Air Force had done following the Khobar Tower bombing and applied it in what is no called explosive resistant coating to the plating on a ship like the Cole and found out that we could prevent penetration of a blast of that nature. It might have gross deformation, but no penetration. And the kids on board, the sailors would remain alive. We didn't realize that that work would then be leveraged now to help protect our soldiers and Marines who are doing patrols and transporting goods in country Iraq in Humvees and four by fours; and again, that has been in cooperation with the Defense Threat Reduction Agency, working over the holidays up at Aberdeen. And I know, Mr. Chairman, you and several of the other members had a chance to see that in the Rayburn foyer.

So last week, I received another e-mail and this is from a sergeant, Marine Corps sergeant in Iraq. And I thought that I might share that with you so that you could feel the same sense of pride that I felt in the investment that we have made in science and technology that is being used by our soldiers, sailors, marines and airmen today.

If I might, he said we arrived at the objective yesterday. It took us a week to get here. The trip was uneventful until the 11th of March, when we spent the entire day running through a gauntlet of improvised explosive devices (IEDs). These were big rounds, not soda cans. They were mortar rain and 155-millimeter artillery rounds, big explosions. I was inside the blast radius on the first one but no scratches. By the grace of God, we had no casualties. We put armored doors on all of our vehicles and the reinforced glass on the windshield worked. I pulled golf ball sized piece of shrapnel out of the door that day. But we denied the enemy access.

All of you need to be aware that the first Marine expeditionary force has up-armored all of his vehicles and it works. Myself and several other Marines are alive and uninjured because the Marine Corps saw fit to protect our marines. I am grateful to you for all of the spending of the money. One of these IEDs was covered by

small arms—and it gets Randy here describing what Marines do to people who shoot at them, and I will leave that out of the reading.

In late November of last year, Secretary England came to me and he said that he had agreed to the deployment order for our Marines going to Iraq in March. It is now March. Our Marines are now on the ground and in combat in Iraq. And he said he wanted to go and throw a very broad net, not just in naval research, not just in the Department of Navy, not just with the other services, not just in the Department of Defense, but all government agencies, industry, academia, national, international, to better enable our Marines to perform their mission, and to better protect them from the threats that he was hearing about every night on the news.

And so on the 12th of December, we had what we called the County Fair at the Naval Research Lab. We invited Jean Reed to come. Regrettably what was going on at that time, he was not able to come. We also invited Bill Natter to come and he was unable to come. But we had representatives from everyone at this table. And the Secretary of the Navy, the CNO and the commandant in execution resourced the millions of dollars to our Marines to make the events of this e-mail a reality. And I am so proud to be on that team. And we thank you for making that possible.

[The prepared statement of Admiral Cohen can be found in the Appendix on page 231.]

Mr. SAXTON. Admiral, you should know that among the first Marines are two people who are very close to us. One is the son of the chairman of the full committee, and the other is my nephew. So we have a personal feeling when we hear those kinds of messages on our committee. And so we are proud that you have been able to do that as well. As a matter of fact, the chairman and I and some other members, Mr. Kline in particular, ventured out to Iraq recently and through the chairman's great efforts, resources and armor, and I think that the team that is led by yourself and by the chairman of the full committee have made it a whole lot safer for our soldiers and marines and other military personnel in Iraq.

While we were there we were in Tikrit, and the 3rd ID leadership showed us how they were manufacturing their own doors for Humvees. And they look a little crude. And we wondered how they would work. So on the way home, we stopped at Ramstein Air Force base, went to visit the hospital, found a soldier who had been in a Humvee when an IED exploded alongside it. And he had shrapnel in his lower leg and in his shoulder. And I told him, of course, how sorry we were that he had gotten hurt. And he said don't be sorry. If I hadn't hung that homemade door on the side of my Humvee the day before, I wouldn't be here now.

So the armor is working. We have got a long way to go to solve this IED problem and armor is a partial answer, but not the full answer. So we thank you for your efforts on behalf of the soldiers and Marines and other military personnel in Iraq.

Mr. Engle.

STATEMENT OF JAMES B. ENGLE, DEPUTY ASSISTANT SECRETARY, AIR FORCE SCIENCE AND TECHNOLOGY AND ENGINEERING

Mr. ENGLE. Thank you, Mr. Chairman and members of the committee and staff. Like my colleagues, I also very much appreciate the opportunity provide some testimony on the 2005 Air Force Science and Technology program.

The United States Air Force is continuing to transform to a capability-focused expeditionary air and space force. We are doing this through the development of our concepts of operations commonly referred to as CONOPs, for each of the seven major tasks the air force must be capable of accomplishing to support our combatant commanders. Our goal is to make the warfighting effects and capabilities we need to achieve them the drivers for everything we do.

This is especially true for our S&T program. We have taken the effects and capabilities required by our seven CONOPs and transformational goals and mapped them to our long-term challenges and short term objectives identified in the congressionally directed S&T planning review completed in February 2002.

Knowing that this committee is focused on terrorism and unconventional threats, let me highlight some of our most exciting work in this area. One that could very well be used to address some of the IED issues, Mr. Chairman, that you just mentioned and is of significant interest is a system we call Ping. Ping is a stand-off microwave based interrogation unit that has reliably identified an AK–47, rocket propelled grenades (RPGs) and suicide bomber apparatus in field demonstrations. Ping operated by illuminating potential threats and then categorizing the return reflected off the metallic object found in a crowd of people by using a laptop computer and specialized software to determine specific weapon type.

Metallic substructures on the weapon resonate at unique natural frequencies that can permit automatic identification of concealed weapons. The Ping demonstration unit is a vehicle mounted system that could be positioned up to 100 meters away to monitor persons or groups of people entering check points for concealed weapons. The unit can also be remotely operated. The Air Force S&T has been briefed to my colleague, Dr. Killion, and we are optimistic that Ping can be rapidly transitioned into operation use.

We are also working hard for our special operations forces in all of the services to reduce weight and integrate the ground targeting kit they use. We call this equipment the battlefield air operation or BAO kit. And improvements are being realized using very rapid spirals to speed development prototyping, testing, production, and fielding and some of this capability can be seen down to our demonstration room today.

As a result, our special tactics warriors will soon have a digital machine-to-machine capability. This helps to quickly connect the right aircraft with the right munition guided precisely to the right target at just the right time to achieve the desired effect. This new automated process helps to reduce the time it takes to target terrorist threats, while at the same time reducing human error in the targeting process.

We are very proud of our work at Tyndall Air Force base and their development of the substances that Admiral Cohen has men-

tioned to you, the elastrometric coating polymers which is capable of protecting not only ships, but key buildings and installations from close proximity explosion, such as air-dropped weapons or truck bombs.

As the Admiral pointed out, it is easy to apply. It is a spray coating and provides greater structural integrity of exterior walls and prevents dispersion of debris as well as separation of wall elements. In addition to protecting lightweight shelters this polymeric coating is currently being applied to the interior and outer walls of the Pentagon.

Another exciting effort that can be seen is the use of a vehicle mounted active denial system, VMADS. This is a jointly developed system with the Marine Corps and is a defensive millimeter wave system used for perimeter defense applications. It is a directed energy weapon that emits a nonlethal nondamaging beam and heats up the skin and potentially causes extreme pain in the enemy, forcing the person to flee. We have demonstrated this technology at full weapon parameters on volunteers at range beyond that of small arms. We are also working hard to defend again man portable air defense systems, MANPADS, and some of this work can be seen downstairs as well.

We of course are engaged in many other exciting advances and I have included those in the written statement, Mr. Chairman, that I would like to leave for the record as well if that is allowed. And some of those that are on the top of my list that have the greatest possibilities for changing the way we operate are the directed energy transformational command system and directed energy command systems and space technologies. It is a joint program. We are sponsoring a competition to demonstrate a 25-kilowatt solid state laser by the end of the year.

If this is successful it will open up possibilities for defense against many types of airborne objects. This technology could provide new capabilities for operations in urban environments. Next transformational command system will give us the bandwidth that will truly enable the global information grid we have envisioned for our warfighter. Of course this technology will make important contributions to our commercial communications industry as well.

Finally, I am excited about several new initiatives in the area of space technology. For many years, we have relied on large launch vehicles and satellites to give our space capability that we demand, but at considerable cost. Within our initiative with small launch vehicle and small responsive satellites, we are on the verge of changing this equation and driving access to and use of space down while greatly increasing responsiveness.

In conclusion, the Air Force is fully committed to providing this Nation with advanced air and space technologies required to meet America's national security interests around the world and to ensure we remain on the cutting edge of systems performance, flexibility and affordability. The technical advantages we enjoy today is a legacy of decades of investment in S&T, as you pointed out, Mr. Chairman.

Likewise, our future warfighting capability will be substantially determined by today's investment in S&T. To meet all of the demands of our laboratory, the Air Force is working to increase our

S&T funding. The Air Force fiscal year 2005 President's budget request is for $1.9 billion.

This includes 1.4 billion in core S&T, which represents an increase of over $80 million, or almost 5 percent of real growth compared to the President's budget request for a similar core S&T effort in 2004.

As we face the new millennium, our challenge is to advance new technologies for an expeditionary aerospace force as we continue to move aggressively into the realm of space activities. The Air Force programs provides for the discovery development, and timely transformational technologies that keep our Air Force the best in the world. As an integral part of the Department of Defense S&T team we look forward to working with Congress to ensure a strong S&T program tailored to achieve our vision of the superior air and space force.

Thank you, Mr. Chairman, for the opportunity to present testimony. And thank you for your continuing support of the Air Force S&T program.

[The prepared statement of Mr. Engle can be found in the Appendix on page 241.]

Mr. SAXTON. Thank you for bringing the displays that you did. When I was talking about my nephew and the Chairman's son, I overlooked—I knew this already, I don't know why I did not think about it, but Mr. Wilson's son is in an artillery unit in Iraq also. And Mr. Reed's son is training units at Fort Leavenworth to go to Iraq. So we are covered. Marty, do you have some questions?

Mr. MEEHAN. Thank you, Mr. Chairman. Dr. Sega, Admiral Cohen, really all of you, if you could explain the importance of innovative propulsion efforts, what might this do for the Department's concept of operations in the future? What new innovations and enablers would result in such efforts? Particularly in the Navy from the instruction of electric drive? I am wonder if you could comment.

Dr. SEGA. I would be glad to. One of the areas is in the area of National Aerospace Initiative. In this case, the propulsion looks at air breathing as well as rocket propulsion. In addition to that, the energy and power initiative has propulsion efforts such as electromagnetic gun. In the propulsive area in the aerodynamics area, the air breathing side is advanced turbine technology. We have had an integrated high performance turbine technology program running for roughly 15 years with contributions with the services, NASA, and industry with a significant match from industry. And they have met performance goals all along the way so that sustained investment has been important. It has resulted in engines in military aircraft as well as in commercial aircraft.

We have extended that in this budget to a higher mach number, revolution turbine accelerator that moves toward the mach 3, 3.5 range, as well as two programs one in the Navy, one in the Air Force, to work toward flight test and demonstration of hypersonic engine, scramjets. The program on the Navy side is cosponsored with DARPA called "high fly," and I think Admiral Cohen will go into that further, and on the Air Force side, a single engine demonstrator which is also with DARPA sponsorship. That will allow us the ability of aggressing time critical targets in a different way.

We are currently able to bring the time of decision down with better sensing technologies better ways of making decisions quickly. So time critical target requires one to act faster than the time a target is available, if it is a fleeting target, so you have the time of making the decision which we are compressing and now we have to work on the time of flight. And so speed is important. And so that is an application for it.

We may have innovative ways of taking that same technology for interceptors as well as for access to space.

In the area of electromagnetic propulsion, we have initiative power supplies that gets away from gunpowder, if you will, with accelerating munition, and I will let Admiral Cohen expand on those.

Admiral COHEN. Thank you very much, Dr. Sega. I will focus on where the Navy is going. And the Navy is going electric. And this is a really exciting time. The DDX, which is now under contract, is our first modern all electric ship: CVN 21, which will be the next class of carrier. While it is nuclear steam turbine direct drive for propulsion, it will have an enormous electric plant because we are doing away with air hydraulic and steam auxiliaries throughout the ship. We are testing electromagnetic air launch from both General Atomics and Northrop Grumman at Lakehurst, New Jersey. A full scale but half length test to do away with the steam catapults. We are looking to going to electric arresting gear.

Advanced planar arrays that the electric ship will enable us to have as the next step beyond Aegis and we will do away with a hundred different communications and director kinds of antennas as all of that functionality is embedded in these planar rays.

Admiral COHEN. But the key to all of this is the ability to efficiently and effectively generate electric power, use it, condition it, store it on board our ships. And we are doing that. The S&T side of this is looking at the competing technologies for our electric generation and utilization. Those are permanent magnet motors; they are high temperature, superconducting motors. They are low temperature homopolar motors. And there is always the fallback of the 100-year-old technology, and those are the conventional induction motors.

What I have here is a poster showing a 36 megawatt, that is 50,000 shaft horsepower motor. In green—and this is to scale—you can see an induction motor. In blue is the American superconducting high-temperature superconductor motor that we have under contract. It is 120 rpm direct drive, so no reduction gear, that we will have either on our risk reduction ship the Radford, or one of the two shafts of the first DDX within 4 years. This work is going on at Fort Devens right now. You can see it is the height of a man.

Once we are able to do this, the electric power for electromagnetic rail gun, which we believe in conjunction with DARPA and the Army, we will be able to project the significant inert projectiles 200 to 300 miles inland, electromagnetic air launch, which you already talked about, high-power microwave, or the active denial system that Mr. Engle just talked about, and they are working in conjunction with them, as well as shipboard lasers changes the whole equation of warfare at sea as we know it.

Mr. SAXTON. We are going to go ahead and vote, and when we come back, Mr. Meehan will continue his questions.

[Recess.]

Mr. SAXTON. Okay. Well, while we are waiting for other members to come back, let me jump in here a little bit.

Ron, can you help me out with explaining to me from a management point of view how projects are identified and how you decide where to put your priorities in terms of, let us say you call up Tony Tether and say we have got this need for IED identification, and somebody else has got another problem with we need a new capability on a UAV. And you have got to get a lot of ideas about what our needs are. How do you determine where to make your investments?

Dr. SEGA. Sir, that is a great question. And the inputs come in from many different areas. Current operations worldwide, we get nearly daily inputs from those at CENTCOM in terms of what needs are. And in that case, our point of contact is through this Combating Terrorism Technology Task Force looks at what part of the Department of Defense is most apt to be able to address that need; and we try to attack it, and then bring it together in with the solution and a test with the operator, somebody from CENTCOM, and then bring it back to the field.

As we go into more of mid-term and longer-term applications, we have advisory boards from the various services in DARPA, as well as Defense Science Board looks at technical opportunities that would be looking at us in the future that we should address.

As was mentioned earlier, biology is clearly one of those. And DARPA has established an emphasis in the strategy and biology—and we have biology efforts in the other services. And so, and nanotechnology would be another area that is highlighted, and those areas that would be important for the Department of Defense to invest money in is identified not only within the services and agencies, but also through advisory boards. And that is sometimes called sort of a technology push, if you will.

We want to look at our investments that are smart. We look at some of the areas, such as information technology that has an enormous amount of money being spent in research development in the commercial sector, recognizing what part of that will be covered by that sector and what part of that we can purchase.

Other aspects of technology going forward, we may need to invest to adapt to what is going on in the commercial community. Other needs that we have, we need to initiate the work and lead it.

Now, our combatant commanders also have an integrated priorities list, and so they look at their future needs. And we roll that through the joint staff in this Joint War Fighting Science and Technology Plan (JWSTP). So we are getting inputs from war fighters in terms of needs to the joint staff and integrating that into a JWSTP, historic war fighting science and technology plan. We get inputs from advisory boards and services inside in terms of what the technical big directions are going and what would be supporting visions of the services in the war fighting community.

And then we need to have, and I believe we are doing this more and more, an open door for new ideas that come from all over the place. We have a tough time solving some tough problems. Remote

detection of chemical, biological, radiological, nuclear and explosive kinds of things is a tough problem, and we are out there all the time looking for new ideas.

Mr. SAXTON. Why don't you take, if you can think of two or three examples of an idea or a need that was expressed by someone in a service, and walk us through how, what is the process, from somebody comes up with a need, and then think of something that has actually occurred, a success story, if you will.

Dr. SEGA. Okay. A longer-term activity, for example, is in the area of batteries. That is a key need, and it happens to be across all the services. You need batteries for satellites, you need those in aircraft, you need those in naval systems, you need them for the soldier.

So in that area, we did that in a couple different ways as well. We have an area process called reliance where the services come together, and we look at different ways of looking at small power sources. We currently have an Air Force and Marine a DARPA in the Air Force combined project in terms of solving the battery problems. Sometimes in terms of fuel cell approaches, some in terms of more traditional higher efficiency battery technology.

So one of the forums is in terms of bringing the defense technology area plan and addressing the issue of batteries. Then the S&T execs get together and look at which part of it they would lead. And so there is occasionally a lead for certain technology area service, and they take that.

For example, in the joint nonlethal area, you saw the display downstairs; that happens to be the Marine Corps. And so there are certain areas we identify and a service takes the lead for that. Others, it is a coordinated process. So in this area of batteries, that only got addressed through a reliance DTAP (Defense Technology Area Plan) kind of process, but we also, because we thought it was an important cross-cutting area we had a task force set up that looked at energy and power technologies across the board.

So we end up approaching some of these things in many different ways. And if someone comes in with new ideas, and DARPA, for the most part, will take on a higher risk approach to solving this problem of batteries.

Does anyone want to pick that up?

Dr. KILLION. Ron makes a good point that they—the process really varies depending upon the application that you are talking about. For some of the nearer term work, for example, the work that we did providing bar armor or slap armor for some of our vehicles in Iraq, that work was done very rapidly. We got feedback from the field about the threat of RPGs and other devices against our vehicles.

Mr. SAXTON. You are talking about Stryker. Right?

Dr. KILLION. Stryker was one of the applications. An early application was bar armor on the engine compartment on the M1, from the Abrams. Feedback came to our people in the laboratories who said, you know, actually, bar armor has been around for a long time as a concept; it was around 50 years ago. But there were people who understood that that might be an opportunity, and they developed the application, did the testing, and were able to field something in less than a month that was at least an interim solu-

tion to the problem. And if you have seen pictures of the Strykers in theater, they have the bar armor on them. And it does work. We have gotten feedback on it, that it does work. So in that case, it is a very rapid turnaround.

Mr. SAXTON. We are going to come back to this subject in a minute.

But while we were waiting, for you Marty, we talked about some other things. Why don't you continue.

Mr. MEEHAN. Thank you, Mr. Chairman. I apologize for being a little slow in getting off the floor.

Admiral Cohen, I was very pleased to hear that you were able to armor the Humvees for the Marines so quickly and effectively, and I think the Marines have really set an example. In fact, recently the Marines purchased about $9 million worth of add-on armor kits from a Massachusetts company, Foster Miller, which is in Waltham, Massachusetts. But I applaud you for getting this done before the Marines are redeployed.

Dr. Killion, recently I have received several calls from companies that have submitted prototypes of add-on armor kits to take—that have been successfully tested, as I understand it, at Aberdeen, but the Army has not purchased the kits. Can you elaborate on what the process is for testing these products? And I am just a little concerned that there are vendors out there with proven products that have been tested, and that perhaps the Army is not reaching out to some of these companies.

Dr. KILLION. I believe the Army is reaching out to the companies in terms of trying to look at whatever expedient solutions are available. What we have developed is a fairly consistent standardized testing process to make sure that any of the solutions we are offered meet muster with regard to providing the level of protection we really need for our systems so that, as you talk about, we take the system to Aberdeen, put it under standardized testing procedures that we have there, and look to see what level of protection it actually does provide.

Now, I am not familiar with the specific incidents that you are talking about where they might have brought something and tested it and it worked, but we are not producing it. I am simply not aware of specific incidents. And if you could provide them to me, I can try to get feedback as to what is happening with that. Once the testing has happened, of course, then we have to look at the Army has to find money to go and produce those items and get them into theater. And that, of course, is a challenge in terms of having the resources available to produce these kits and get them in theater. And it takes time and money to get them in place.

Mr. MEEHAN. I guess my concern is that my understanding is that there have been a number of companies where up-armored kits have been approved, but there are only one or two companies that are actually the Army is purchasing from. It just seems to me where I sit that the Marines have been much more effective in terms of turnaround in terms of before they redeploy making sure that they go out and purchase these kits. And I can do, I can provide you information that I have, and I have been working with the family of a soldier who was lost in a vehicle that wasn't up-ar-

mored. So I can get you some of the information and you can look at it and see what you think.

Dr. KILLION. The best I can do is if you can let me know specific incidents. I know the process by which they bring things in, do the evaluation, things that don't pass muster are obviously things that we don't want to pass along to the troops. And the other side is, how do we then get into the process of procuring them and fielding them?

Mr. MEEHAN. Dr. Tether, can you please share with us your views on nanotechnology and the possible breakthrough applications that we might see if we continue to invest in this area? Nanotechnology is of particular interest to me, because one of the premier institutions in the field, the University of Massachusetts at Lowell, which is an institution you have been up to visit, is really leading the way with a company in my district, Triton Biosystems. And they are using nanotechnology to develop a low side effect treatment for the late stages of breast and prostate cancer through the Army.

So I have seen firsthand the importance of the medical applications of nanotechnology, and I was wondering, in your estimation, are there any potential downsides, technological, ethical, moral, associates with investments in nanotechnologies? And, if so, what might they be?

Admiral COHEN. Well, gee, I can't think of any downsides. First, there is a definitional problem of, what do you mean by nanotechnology? I guess we will assume it means things that are small and will take it from there.

Mr. MEEHAN. I would say very small.

Admiral COHEN. Very small. But the opportunities are tremendous. We really are just scratching the surface. And what we are really just starting to develop are the tools. We are at the stage almost where we were in the beginning when we started building the oscilloscopes and voltmeters and things like that. And from that we were able to develop electronics that were incredibly powerful. With nanotechnology, we are still in that tool development stage, but the promise is really there. Imagine making a material that does what you want it to do, you know, where you can literally take atoms and push them together and put them together and be able to predict what the properties of that material would be. It may be possible to make really truly amorphous steel that is transparent. You know, the things that we will be able to do with it are just limited currently by our own imagination.

So what we at DARPA are doing right now is we are spending a lot of money in the development of tools. And one example of a thing we are doing is trying to develop a magnetic dipole that is on the nanosize. Now, if we can do that, you know, a magnet, a nanomagnet, if you will. If we can do that, we can put an antibody on that magnet so that you put it into your body and it will go and attack a certain cancer cell. Now, what we have now is we have a cell that we don't want in the body but it has a magnet on it, which means we have a new way of doing dialysis. I mean, we could literally clean the body of cells very quickly because we have a magnet and we just run it through.

One of the guys who is really a far-out person says what you do is you just put a magnet by the person's skin, all the bad cells stay there, and then you just take them out with an IV. That is just an example. But what you really need to be able to do that is, first of all, you have got to be able to make that nanomagnet. But then you have got to have the tools to be able to push it around and actually—and that is where the technology is, Marty. I don't see any downsides. I mean, I suppose that somebody will find some nefarious things to do with it. But, geez, the benefits I think are going to far outweigh, you know, new materials, new electronics, new—the medical field is going to be tremendous. I just don't see any downsides. I don't know. Anybody else? Any downsides? Nobody sees any downsides.

Mr. MEEHAN. Thanks.

Mr. SAXTON. Okay. We are going to go to Colonel Kline. Before we do, Admiral Cohen is going to have to leave us in just a few minutes, and when he does, he is going to be replaced by Captain John Kamp, Assistant Chief of Naval Research. So, sir, when you are ready, just give a wave and we will thank you for being here at this point.

Admiral COHEN. You are very kind. And it is a little bit of a follow-up to the question you asked Dr. Sega how do we decide where we invest. And I have to leave to meet with Navy leadership about the Secretariat in Uniformed and Marine Corps side for exactly that reason. So.

Mr. SAXTON. Thank you.

Admiral COHEN. Thank you, sir.

Mr. KLINE. Thank you, Mr. Chairman. And thank you gentlemen all for being here today. And there are some many exiting things going on out there, and we have heard interest expressed already today in what is being done for IEDs and how fast and what is the process for getting things from an idea into something that might save some lives in Iraq.

But I want to shift to something else. One of the staff put a little note here and it reminded me of some truly just miraculous things that are going on with our soldiers and Marines that are coming back as amputees. One young soldier in my district I visited in Walter Reed, and he had lost a leg, and when last seen, there was a picture of him preparing to go snowboarding. We can still do that in Minnesota, even at the end of March, by the way.

And then I listened to the comment on the Marine Corps this morning talking about a Marine corporal who lost his leg in a minefield, and was pulled out of the mine field by a staff sergeant. The young corporal was sent back here to Bethesda, was given an artificial leg, reenlisted, became a sergeant, went to jump school, completed jump school appropriately in the top of his class, and is now back in Iraq. And it is just amazing stuff.

And so my question to you is, I am not sure where that—if that is in DARPA's area, maybe Dr. Tether you could talk about that, what you are doing in that area, and just comment about the just amazing things that are going on there.

Dr. TETHER. We have a program which is called HAND, Human Assisted Neural Devices. This is a program that was started a few years ago at Duke University and at MIT, and basically it is a—

the program was, we took a monkey and we put implants in the monkey's brain. All under the right protocols and all of that. Okay? And what made that possible, by the way, of being able to put these implants is nanotechnology again. We were able to make probes that were so small that we were able to do a lot of them in the brain and not do any damage to the brain.

So what we did with the monkey was she had to take a test. When a light came on, she had to move a joy stick and then she got a treat. The joy stick was to move a ball on the screen to another place. And meanwhile, we took the codes out of her brain and sent it to a mechanical arm. So the light would come on, she would move the joy stick to make the ball move; the codes would go to this mechanical arm, and the mechanical arm was taught just to move like she was moving her arm.

Now, that sounds really great. But what we did is we took the joy stick away from the monkey, but the light comes on. The monkey knows that it has to move this ball in order to get this treat. So we don't really know what she thought, but she didn't do anything, but the mechanical arm moved just like it was supposed to in order to move that ball.

So where we are today is that we have tests today where this monkey has learned that it doesn't have to move its arms. We thought we were tapping into the motor function, you know, the function that actually moves, but what we had tapped into was the thought, the thought of moving it.

Now, imagine this. And by the way, we are talking with the VA hospital and the people there who get involved in this. Imagine this, where you have an arm, a mechanical arm. Maybe it looks like a flesh and blood arm but it is really not, where you think: Pick up that glass. And you pick up that glass. That is going to happen. This project that we are on is going to allow that to happen. You know paraplegics, a person with a healthy brain, could now have a body that all he has to do is think about doing things and it does it. Now, there is—it is not going to happen tomorrow, okay, but there is a lot of technology that has still to be developed. We have learned how to go the one way, but what we have to do now is to learn how to give the brain feedback, the touch, the feel of touch that I have this cup. But that is part of the program.

So we have got a great program. Again, it is HAND, H-A-N-D, and we are quite active again with the VA hospital in order to basically solve that problem.

We have come so—our problem today is that our armor, body armor is really good. So soldiers that would have died in other wars aren't dying because they are not getting chest wounds, but they are getting wounds in their extremities.

Mr. KLINE. Admiral.

Admiral COHEN. Congressman, I would like to follow up. I certainly salute what Dr. Tether is doing, and would like to reiterate that we don't—do not want to raise, you know, false hopes that these are right around the corner, although I think we can see some clear paths. The Navy and Marine Corps working with the Army, because of what Dr. Tether, said the ceramic body armor is so good that we are seeing a reduced number of fatalities, but the number of amputees is significant. We are looking, using foreign

technologies, using work that has gone on at the Navy labs, looking at material, sciences that we have under the rubric of—when a jet pilot gets ready to get in a plane, he or she puts on a G-suit. They dress for the mission. Now, they don't walk around all day in that G-suit; it is cumbersome, uncomfortable, hot, et cetera.

So we are seeing that most of these casualties are occurring in the Humvees as they are being targeted making patrols or in the convoys as they are going, trying to resupply. And so we are looking at taking, in addition to the ceramic body armor, sleeves, stockings, booties, et cetera that would, although you might have a terrible shrapnel wound, it might be bleeding, we know how to stop the bleeding. You may have compound fractures. The limb itself is held intact so that during that golden hour, with our wonderful field hospitals and the great medical care that we have in theater, we can get those injured soldiers and Marines and others to the hospital where we can save their limb. I have classmates and friends from Vietnam, we all do, you don't want to see them in a T-shirt because they have leg tendons in their forearm and they are not very good at playing basketball. But you know what? It is their arm.

So I think we are looking at these parallel approaches, saving the limb, and then enhancing the functionality that Dr. Tether talked about. We don't want to hold out false hope here, but we are fast tracking this with the Army and we are excited.

Mr. KLINE. Well, I appreciate the answer from both of you. And I, too, am always leery about false hope, but the examples that I gave were real examples, real soldiers, and real Marines who have lost their limbs that are now not only functioning, but the Marine going to jump school and finishing at the top of his class and being back in Iraq, that is something that we wouldn't have considered not that long ago. So I am heartened by the fact that there is real progress, and really excited that you are working on some things that are truly miraculous.

Thank you, Mr. Chairman.

Mr. SAXTON. Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman.

The first question I have is for Dr. Sega and perhaps Dr. Tether. But it has to do with the President's speech on February 11th at National Defense University on proliferation and nonproliferation, where he outlined six or seven or eight separate activities or goals he wanted to reach. And my question is whether or not you, Dr. Sega or Dr. Tether, are involved in—to the extent you can talk about it here, involved in any research to support enforcement for standoff detection of either weapons of mass destruction or just the transportation of materials that could be used to develop weapons that can do us harm. What kind of role are you playing or what kind of role do you see in the future to support the goals of that particular set of policy initiatives?

Dr. SEGA. I will answer the question in very general terms. We—this is one of those initiatives in surveillance and knowledge I mentioned before, are building a technology base support the integration of C4 ISR, the community control communications intelligence surveillance reconnaissance across the Department's need. And so advances in sensor technology, advances in communications tech-

nology, advances in fusion of data, and understanding—and understanding environment is important. And the ability to do that is something that we are trying to push forward. Now, the exact application and the systems is something and the details of which we won't be able to discuss here.

Mr. LARSEN. Okay.

Dr. TETHER. Well, it is the standoff that is the problem. We fund every good idea that comes in the door. And we are really more idea starved than we are money starved. Any idea that you hear, please send them to us. But, again, it is standoff. If you are willing to be able to touch the article or something like that, there are techniques that allow us to do that. But being able to reach out and say that that is a biological cloud a kilometer away, and it is this type of bio, or that is a nuclear, we don't know how to do that. But we are still trying. I mean, it doesn't mean that something doesn't exist, but the current physics of approaching it is obviously the wrong way because we don't know how to do it.

Mr. LARSEN. Did you want to follow up anymore? If there is additional information on that, perhaps if we could just ask the staff maybe we can set something up to discuss that. I would like to follow up.

Dr. Sega, I think it was in your testimony. I don't think you mentioned it verbally, but in writing, you talked about the need for scientists and engineers and—because of the lack thereof. So you increased stipends for fellowships and so on. And that, I think, is a good approach, but you are sort of going out there and competing for the relatively per capita, the shrinking pool that is out there already. What efforts are there through your agency to help expand the pool? You know, we are falling behind many other countries in per capita production of engineers and computer scientists and so on. So what kind of efforts are you putting forth to increase that pool available in the U.S. as opposed to competing for the current pool?

Dr. SEGA. If I could just outline some of the work in progress. The only office that I established in the Office of the Directorate Defense Research Engineering since being here since August of 2001 was that of the Deputy Under Secretary of Defense for Labs, which is laboratories and basic sciences, also responsible for looking at university programs and workforce. And we have gone at it in several small ways, and including tapping into some programs that tie our laboratory system with programs in the high schools and mostly in-kind contributions through scientists and engineers through a program called Material World. The teachers have kits, if you will, to work with students and increase their interest in science and math, and they have a reach-back to the laboratory on folks. And our first kickoff is at Picatinni Arsenal.

We also are extending a freshman experience, where we find that students that are qualified for continuing in a technical major, that was their intent when they entered as freshman, for a variety of reasons, is not continuing after their freshman year. And it seems to be not correlated with talent. And so we are looking at—and we have piloted some programs in that freshman experience area.

We are at the current time looking at a study to make sure that we can quantify this demand and supply. But where do we see the

demand in the future? Because as we map the needs of where we are going in the Department of Defense and what critical disciplines we will need, what is the supply as we see coming from universities, and here in certain areas we need U.S. citizens. And so that is a concern of ours, and we are addressing it. And I don't have that final data for you at this time.

Mr. LARSEN. Do you anticipate in the future having that reflected in a budget request, perhaps not in 2005, but in 2006?

Dr. SEGA. Yes. We are building that study to inform an action staff. Yes.

Mr. LARSEN. Okay. A question for each of the services and—then. You have the explanation here of the propulsion. I was wondering if each of the services could pick one project you have been working on in terms of research, and not focus on say the—how cool it is, if you will, but the strategic importance of that particular project. How does it fit into where we want our military to be and want our military—what we want our military to do in the future? Could you help us out? And maybe start with Captain Kamp, and then go to Dr. Killion. You want to start on the other end?

Captain KAMP. Sure, we will get started on the other side.

Mr. ENGLE. Sure. I did in my oral remarks highlight three I thought were particularly important. I would pick out of those three probably transformational com system or TSAT, which is well underway now. The technologies, I think, are maturing on the schedules that we believe they should. There doesn't appear to be any miracles that we need to get by in order to build really the bandwidth, that will give us the true Force Net, as my Naval partner would suggest, or global information grid, as the Air Force terminology tends to use.

What that will allow us, I think, from the standpoint of how we operate is an unparalleled ability to be aware of our environment across the board. Imagine virtually every entity in a battle space having an IP address, using IP protocol 6, being given information with metadata wrapped around information packets, that machine-to-machine command activities independent of human interaction go to this place, be prepared for additional signals, on command attack such and such. That can all be done if you have that kind of bandwidth.

And I think that that is coming. That laser communication coupled with the continued advances that we are making in radio frequency communications I think will give us that global IP backbone in the sky that we sort of always have dreamt about. And that is probably within reach by the end of the decade.

Mr. LARSEN. Next.

Dr. KILLION. I will cheat because it is really a constellation of technologies that is the future combat systems (FCS), the capability that will enable the Army to be more deployable, both strategically and tactically. It employs the kinds of networks that Jim is talking about. It depends upon the network to be effective. It allows us to operate in full spectrum environments to get there, to be more self-sustaining to demand less logistic support and therefore less logistics tail associated with it. It employs robotics on a large scale, something that I think is important in terms of reducing the number of person—the personnel footprint associated with

the systems, but also putting fewer of our soldiers at risk in the combat environment. So it is really FCS, which is that system of systems that is strategically important for the Army, and is our largest S&T investment along with our partner in DARPA.

Dr. TETHER. Actually, this also will answer part of your question earlier on how do you pick ideas. We—first, let me tell you the cool thing. I don't know if you have ever seen an atomic clock, but it is big. And what we are developing today is an atomic clock on a chip, that we will literally be able to go on a chip which could go on your wrist watch, for example.

Now, that is really cool, but why on earth are we doing that? Well, our military forces are quickly becoming netcentric forces in that they are all going to be networked together. Now, these are special networks. These are not networks where when we go into an area we can wait for somebody to go put up towers and stuff like that. I mean, when our forces go in, the network has to instantly form. And when a new node comes in, it has to instantly join the network and so forth and so on.

We know how to do that now. We know how to make these robust cell-forming networks. But the one thing that they have to have in order—one thing all of these nodes have to have is they have to know the time. They have to all have the same time path. Currently, we get that time by Global Positioning System (GPS). GPS is actually used more for the time signal than it is for geo-location. So currently, the way we establish the time among all the nodes is to listen to GPS, and that establishes the time. Well, we have got a tremendous vulnerability, because we are all now going to be network-centric.

And if the enemy can take down the network, we have no force. So jamming GPS not for the geo-location, but jamming GPS so we can't get the time will completely take this network apart.

So, now, having that atomic clock on the chip allows us to put in each node the time so that we are no longer dependent upon GPS. And that is—by the way, that is why we picked that idea, for that reason. It is not a current need. I mean, you wouldn't find it as a validated requirement. But if you think about it, you know, we are going to have to be able to do that, and that is why we are doing that, as an example.

Now, I guess, John, it is up to you. John used to be with me at DARPA, so I know he can give you some DARPA stories. He has only been up at Navy for a very short time.

STATEMENT OF CAPT. JOHN KAMP, ASSISTANT CHIEF OF NAVAL RESEARCH

Captain KAMP. Well, thank you. I have been at the Office of Naval Research (ONR) about 4 months; I can almost spell it now.

I think there are really two answers to your question. One is, I think I would like to take it back and talk it over with the Admiral and such, because I think it is a good question that may have—so I would take that one for the record and say, gee, Admiral, let us really talk about it.

But since you asked, it is kind of—there is a lot of things we do at O&R that I have been exposed to that kind of all pull together. And I will tell a story how they all kind of pull together.

An electric ship, I think is an exemplar. I was sitting there, and all these people are, yeah, think about this, think about this. But as an example, I mean, if I can get to an electric ship, it enables new weapons, it enables the electromagnetic (EM) gun that we were talking about dealing with at DARPA and with the Army. It enables a new class of—a new capability we can't think about today. There are new whole structure options that come from an all electric ship when we start talking about different propulsion systems or we start talking about different ways of putting together ships, how we weaponize the ships, I think that changes, how we start being able to have our sensors differently with high-power radar and being able to distribute things differently, and giving us tactical options that don't really exist today.

But they all kind of pull together, and there is a lot of technology developments, a lot of S&T coming from across a number of disciplines that are pulling together to give us this new capability.

That is kind of an example. And every time I go and talk to Dr. Lubar, who is our technical director, and I see some of the stuff they are doing, I find, you know, cool technology to go look at. And I go out and visit the industry and the universities, and I find good people working on great things. And, you know, I am still in the "wow it is really cool" mode.

And so, but to answer the question about what is the single most strategic investment, the stuff we are going in Force Net is important, it is part of the story. I think there is a lot of it there, and I think I would like to go say, okay, what does the whole story look like?

Mr. LARSEN. Thank you.

Thank you Mr. Chairman.

Mr. SAXTON. Thank you very much. Good questions.

I would like to return to the question that I asked earlier. And let me, without being contrary, let me say why. From my perspective, I believe that we are about identifying near-term solutions and maybe some far-term solutions that have to do with our ability to do force protection, to identify threats, to communicate, to do all the things that we have to do to provide national security for our country. I have seen a couple of things, particularly some of Tony's projects that I am not sure about. I certainly see the scientific value, for example, of the research with the monkey and the brain and the arm.

I, frankly, have a question about how that relates. I know how it relates to health, I know how it might relate to some future procedure at Walter Reed or Bethesda. I understand that. But I have a tough time relating that to why we are doing it with national security dollars.

I also—Tony and I have had this discussion before. I also watched with some surprise at the project that we did recently with the ability to do robotic vehicles. And I know that it would be nice to have trucks that can go across the desert from point A to point B, and then on to point C and on to point D. That is neat. But I have a tough time relating to how that is going to help us any time soon with either our military capability or our manpower issue, particularly given the results that I saw on television the other night.

So, I guess my question is this: At each of the service agencies and at DARPA, Dr. Sega, can you—maybe if you just talk about those two projects, maybe you can help me out with those two projects. But I personally have a little difficulty with both of them.

Dr. SEGA. Okay. In fiscal year 2002 we did an S&T linkage to transformation study. So we are looking at the aggravated investments and the expected outcomes of what the services and agencies were doing against the goals of the Department of Defense as outlined in the Quadrennial Defense Review, the operational capabilities. And there were some gaps in what we were doing, and so we needed to do some adjustment in the investment portfolio.

In the case of DARPA, and in review, the work in the services and agencies, as we go forward with the budgetary process and it goes through my office as a review in part of our normal building the budget for the following year, for the alignment in the programs, and there is a risk portfolio, if you will, inside of DARPA's programs. Now, Tony may indicate that we have, all of DARPA is high risk. I would suggest it is not. And that we have a certain part of it that is an important part of the budget that—of the DARPA budget that is in alignment and we are counting on it working. Tom and the Department of the Army is counting on future combat systems to work. And there is a significant investment of DARPA in the Army and in enabling future combat systems to work.

Recently, the collaborative arrangement established by Joint Unmanned Combat Air Systems (JUCAS) between the Army, the Air Force, and the Navy and DARPA. In terms of the two hypersonics programs that I mentioned, there is a DARPA piece that is collaborating with the Air Force and with the Navy, and both of them in this is Mach 6 range. And in terms of energy and power, there is an adjustment in the submission in the fiscal year 2005 budget in DARPA in energy and power needs that, in our view, wasn't being addressed in the services, and DARPA picked that up.

Now, in terms of some of the higher risk things, we have to push some of those frontiers. And the nature of discovery as you push frontiers of knowledge is sometimes not what you fully expect it to be. The lasers in the 1950's ended up—no one would have perceived that that research would end up in the grocery stores, if you will, for identification. Now we are using that laser technology for lots and lots of things now in terms of looking at communications in space.

So I don't think we can always look at what the final result is going to be from our research, as particularly true of the fundamental work in 6–1 and a portion of the 6–2 DARPA budget I would put in that category as well.

Other pieces of it in terms of the force protection issue, when we identify work—and it has been done by the services and the agencies here, especially in the last year and a half or so, the expectation is that the results will happen normally within 6 months, probably not more than a year in terms of taking technology to a state that we can field it. And so, you know, several examples of that in terms of force protection. And in that case, it is—a clear operational and technical outcome has been identified, and we focus on drilling to that in a cooperative way. And I think there

has been a collaboration that has been spawned by necessity to bring technical solutions along with operational solutions to our folks that are in the CENTCOM Area of Responsibility (AOR) in particular.

Dr. TETHER. Let me try to answer the two project questions that you brought up. One is easy to answer, and that is the autonomous vehicle.

Mr. SAXTON. I am sorry. I didn't hear you.

Dr. TETHER. The robotic vehicle, the autonomous vehicle. There is an easier one to answer. If you look at what we have in Iraq today, I think we heard yesterday we have 12,000 Humvees, God knows how many trucks, and all they are doing is—I mean, they are transporting. So if you look at the number of people that are involved in driving those trucks, in driving those Humvees, it is a significant number.

Now, that is not the significant number because those people have to be fed and taken care of, so each person by themselves causes probably another four or five other people inadvertent on the logistics chain. If we could do nothing more than to have convoys of trucks drive themselves from point A to point B, that would be a tremendous decrease in the number of people that we have to bring into the theater, which would be an enormous decrease in the number of injuries, and so forth and so on, and also a tremendous increase in our strategic mobility. That is why the autonomous vehicles, in our mind, was a good application.

FCS in fact quite frankly counts on the number of people going to a theater to be—for those logistical purposes to be greatly minimized.

On the other one, it is really just our imagination. If you could think for something to be done and have your thoughts acted at a distance, gee, I don't know, I could control a robot, and basically have a robot go up to something that I want to check out, and I could be just literally my thoughts of move left, turn right, and so forth and so on, as I watch it as opposed to being wireless, just have it happen. That is what at DARPA would—that is in our 6.1 budget. That is our very fundamental research. The application to prosthetics is clear. Applications to a real military warfighting use of that type of technology is not so clear.

The only thing I can tell you is if you remember the movie Foxfire, Clint Eastwood, he took a Russian airplane and he had to think. The Russian airplane was set up so that in order to control it he had to think, you know, turn left. His thoughts were controlling the airplane. That is a possible application of this type of technology.

But the only current one that we really have I think that stands up to any real—you know, is the fact of being able to possibly get people back their ability to move limbs.

Mr. SAXTON. I guess I would ask a follow-on question, and that is that I guess it would be—well, let's put it this way. When I was a kid I used to read the newspaper and used to read about Dick Tracy and he had a little watch that was a telephone and I thought that was really neat and I thought, well, we will never have that. But you know we are not far off. So I get your concept.

Now, can you tell me how long—I mean, this evolution took 50 years from the time that this was an idea that would be nice to have until a point where we have almost achieved wristwatch-sized telephones. That is 50 years. Now, how long do you suppose—of course this is a question that you can't answer, but is there a need to identify some period of time when you get a payback on the investment that you are making in this kind of science?

Dr. TETHER. In the autonomous vehicle case, we believe that within 5 years, 5 to 10 years, we will have the capability to have vehicles drive themselves, not go in combat, not with weapons, not being a scout or something like that but just the logistic vehicles, and this grand challenge that we had was kind of a first step. The distance from Barstow to Frin is 142 miles through the desert. That was picked a little bit because the distance from Baghdad to Tikrit is about 142 miles.

So, you know, if we could just get those vehicles and go that distance through the desert, we really are on the vernal of having convoys, logistics vehicles taking fuel, food, so forth and so on.

Mr. SAXTON. You use the example of Iraq. Is that a realistic objective? Is that a realistic objective? Given what you know about Iraq, is that a realistic objective?

Dr. TETHER. To have autonomous vehicles?

Mr. SAXTON. In Iraq today or in that kind of an environment.

Dr. TETHER. Well, I think we would use them.

Dr. KILLION. I think there have been payoffs already in the robotic vehicle arena. I mean, we saw it in Afghanistan, investment that Tony—that DARPA made back in the 1990's in the tactical mobile robots program, produced robots that allowed our soldiers to send a robot into a cave instead of having to go into a cave themselves potentially to face an enemy.

Mr. SAXTON. And the soldiers sit there and control the robot now.

Let me go back to my question. Is it a realistic objective? Tony said he has got a program that is going to develop robotic trucks that can form a convoy and carry goods from point A to point B to point C and finally to where the goods are going to be used by our military people. Is that a realistic objective in Iraq today if we had the technology? Could we send a convoy out with no people and expect it to get where it is going to go?

Dr. TETHER. I think we would still have the two Humvees that are armed behind it and in front of them, along with that convoy. We wouldn't get rid of all the people, but, again, I really do believe that we will be able to have that capability.

Now, what is the savings of a convoy of 10 vehicles with not having drivers in it? First of all, they don't make a very good IED target any longer, other than getting the convoy, but the number of people that are required to support the people driving those vehicles is substantial, but, yeah, I do believe that.

I would be less optimistic that we will have an autonomous vehicle that will go sneak in behind the enemy lines and get information and take it back or have one that is armed to go in, but to do the simple job of going from point A to point B, yeah.

Mr. SAXTON. You are more optimistic than I am, and I say this in a friendly way.

What about the monkey's arm?

Dr. TETHER. The monkey's arm, our projection is that this is a project that probably is 20 to 25 years out. You know, it is a long haul. It is going to happen. By us being involved with it at Duke University, there is universities all over the country now that are doing this, because we showed it could be done. One of the things that stops progress is having people not believe that they can do it. The 4-minute mile, for example—remember—because I think we both remember back in those days it was proven that a human could not run faster than 4 minutes. The instant that one person did it, three others ran less than 4 minutes right after that. It is showing that it can be done. That is sometimes what DARPA does and DARPA does the best.

Mr. SAXTON. When somebody shows you that something can be done and it is something that is a needed idea or a technique, we said that anybody that comes in with a good idea, you go ahead and fund it.

Dr. TETHER. That is correct.

Mr. SAXTON. I brought you an idea a while back and first you told me it couldn't be done, and then you told me the—you know what I am talking about.

Dr. TETHER. Yes.

Mr. SAXTON. I am talking about Al Beck. And then you told me that you didn't fund it because it couldn't be approved by the FDA. And Al Beck now infected mice with both anthrax and smallpox, or some form of smallpox, and you have got 100 percent survivability in both cases.

Dr. TETHER. I know.

Mr. SAXTON. And then you told them you said it couldn't be approved by the FDA, and now he has shown me that it can. And as a matter of fact, he has sold the program to George Mason, who has now bought out the private contractor that was running the program, and they still need funding now. Can we talk about this in a serious way this time?

Dr. TETHER. His technique is a very hard technique to get through the FDA process. The reason is, is that he takes a combination of drugs and mixes them into a cocktail. There is no reason to believe that it doesn't work, but to get that through the FDA, you have to—their techniques will force you to show each one of those separate ingredients in the cocktail works before you mix them together. So he has picked——

Mr. SAXTON. But he is taking off-the-shelf prescriptions and mixing them together, and you can treat smallpox after the attack has occurred.

Dr. TETHER. We are working with him.

Mr. SAXTON. No. What does that mean?

Dr. TETHER. We are working hard with him in order to help him. We have got our guys working with him to help him, and he, by the way, is very puzzled by the U.S. process,you know. I mean, he is really.

Mr. SAXTON. And I am equally puzzled by yours.

Dr. TETHER. But he is really puzzled by the U.S. process of getting drugs through. He doesn't quite understand why this just doesn't happen, and quite frankly, I am a little bit on his side, but the process is the process.

Mr. SAXTON. You need to be more on his side. You know, when you think outside the box, I would put it to you this way, and I am not going to give up on this, because I think he is on to something. Five years ago when I started to help him I was a voice in the wilderness, and I must admit that it was uncomfortable at times being a voice in the wilderness, but now he has demonstrated that he can infect mice with both anthrax and smallpox, treat them after they are infected and save 100 percent of them, and I find it hard to believe that I have to fight as hard as I can to get a few measly bucks to keep him going, when you said there a few minutes ago that somebody comes in with a good idea, you will fund it because you can't find enough good ideas.

Dr. TETHER. Right. That is true. I did say that.

Mr. SAXTON. I have got a partner up here who is going to help me earmark the money. How about that?

Okay. Mr. Langevin, I am sorry. I got carried away.

Mr. LANGEVIN. Thank you, Mr. Chairman, and gentlemen, thanks for the work that you are doing. It is always a pleasure to have you here, and I am a big supporter of the various agencies. So thank you.

Just to follow up on the discussion on the human computer interface work and also nanotechnology, I know that Brown University is doing extensive research in this area, because I have been briefed on it, oh, probably a little less than a year ago, but I want to know to what degree you have interaction with Brown University in this research, both in nanotechnology and also the computer human interface work.

Dr. TETHER. Our research with Brown, I believe that we are involved with—we have funded the researchers somewhat in that area, and we are well aware of his work. In fact, his work really started as a consequence of when we were first showing that—the first results that were coming out of Duke.

Mr. LANGEVIN. I just want to make sure you are aware of what they are doing at Brown University and get that on the record. So thank you.

I have got a question for Office of Naval Research. I want to know the status of oceans research being done through the Office of Naval Research. I understand that ONR is in numerous projects transferring to and from OSD that hasn't had a budget increase accordingly, so could you tell me the future of ocean systems in climate research with the Navy, how that work is going on right now, the University of Rhode Island?

Captain KAMP. Yes, sir. I would like to take that one for the record, because there is a lot of detail on that one.

Mr. LANGEVIN. That is good. We can follow up on the record on that.

Also on—by the way, you know, in the chairman's discussion in the interaction in terms of these vehicles that could drive themselves, I personally can see a tremendous amount of benefit to that. You know, we have unmanned aerial vehicles, UAVs, that are going to be driven by a person at another location, at a stationary location, and they do drive these things and fly these things into hostile territory. There is no reason we can't do the same thing with vehicles, and I can see the benefit of being a decoy convoy

going down a road to ensure—in addition to the countermeasures that were used, but to actually use a convoy as a decoy to see if there is actually any of these explosive devices along the road that are going to be detonated as the vehicle is driving by. So I think that is a tremendous benefit, in addition to just moving a convoy and moving goods from one area to another within a combat zone. So keep going on that. I think it is great research.

Also, I am deeply concerned about the threat of bioterrorism, directed both against our troops and our civilians, and I know that DARPA has been doing some impressive research in this field, and I was hoping that, Dr. Tether, you might be able to describe some of the programs both in the realm of preventative vaccine research and bioagent sensors.

Dr. TETHER. Well, some of the work is Dr. Al Beck's work that Chairman Saxton was talking about, but with DARPA what we did, which was a little bit different than what anybody else did in our vaccine work, was we looked at the difference between—we went to the DNA and we asked the question, what is the difference between—what is in the DNA of a bug that is not in the human DNA? And we found certain sequences called CPG. If there is a lot of CFG sequences in bacteria, that you could then attack. So what we did was we developed vaccines that would do two things, vaccines that would go after that part of the DNA. If that was in your blood, it was a foreign object, and it wouldn't hurt the human.

On the other hand, we also found that if you just took segments of CPG and in a vaccine like an anthrax vaccine you put in CPG, you could increase the efficacy of the vaccine very fast. So perhaps while not needing six shots to get the full efficacy, you might be able to get the same benefit with only two shots.

We did prove this with hepatitis, by the way. It is hard to go and experiment with the other drugs, but with hepatitis you usually need two shots in order to—of a vaccine, and we were able to show that if you mixed in the CPG with the first shot that most people did not need the second shot. And that is basically what our research has been, and in a lot more detail I will be happy to send you that, but that is sort of the fundamental part of it.

Mr. LANGEVIN. That is all the questions I had, Mr. Chairman. I will yield back, unless you wanted to follow up on the UUV and UAV——

Dr. TETHER. I think you are absolutely right. Today we have UAVs, Predator and Global Hawk and other vehicles flying in, because we don't need people to do that job. It is almost like the truck. You know, a Predator and a Global Hawk is something that goes and just circles around and takes data, and so that was really equivalent to, if you will, this convoy of trucks.

It is one thing, however, to fly from point A to point B when you are above all the mountaintops than to try to drive around—well, you couldn't drive around this building anyways, but to have an autonomous vehicle do it would be totally impossible.

What happened at that grand challenge was quite interesting. And I had someone with me. The first vehicle goes out and makes the turn and roars out and makes the turn and is actually driving somewhat lifelike. So he leaned to me and he said, now, you are sure no one is inside there. Right? Because it really did move out

as if it was—it not only got 8 miles through a little bit of bad luck because we had—really the hardest part of the challenge was in the first 15 miles. We probably were dumb doing that, but that is the way God made the desert. But we are going to get there.

In fact, the Department of Commerce for years has had the Intelligent Highway Program, and that is coming. It is the same problem. You will some day take your car, drive it to a through-way, program where you want to go, and the car will take over driving you the rest of the way. And one of the reasons for wanting to do that in the commercial sense is that way we can pack cars really close together, and it becomes a throughput problem on our highways where we have congestion. So it will be useful even in a commercial world.

Mr. SAXTON. You are making me feel bad now, because you are making me think of my dad. He passed away in 2001, and he had Parkinson's disease for a long time before that. So it got to the point where the only thing he could do for enjoyment is I would go home and take him for a ride in my vehicle. So I bought a new Blazer and it had a lot of automatic stuff inside. It was the top-of-the-line Blazer, and we started out in the winter and he said, well, why don't you turn on the heat, son? He was grumpy. He said why don't you turn on the heat, son? I said, well, dad, when the engine warms up, it will turn it on. He said, pretty soon they will be doing all our thinking for us.

Well, listen—Jim, are you finished, or do you have more questions?

Mr. LANGEVIN. Just for Dr. Sega if I could. We had a great briefing a while back on hypersonic propulsion and that was impressive research, and I am curious as to the limits you see on it. You know, where are we going to be 25 years from now? You seem to be pushing the research. It is almost growing exponentially. Where are we going to be 20 to 25 years from now?

Dr. SEGA. The crystal ball gets a little fuzzy as you go out further and further. It goes back to the chairman's question a little bit. We look at putting investments in generations, and so we have a near-term generation that will replace what we are doing now. Generally it has more money in it than the one generation behind that, the generation behind that and the generation behind that. But as we laid out the technology roadmap in hypersonics and in other technologies, we are moving toward test flights, building off of a couple decades of ground-based testing and theoretical work. So the first flight test, I believe, at around the MACH 6 range is high fly, the DARPA Navy program; and in that same range, the MACH 6 to 7, is around 2008 for the Air Force program.

We have a Rascal program from DARPA that has a turbine engine vehicle that goes to roughly MACH 3.5, to roughly 150,000 feet, and releases two stages of rockets, and you have—a small payload then is sent into space.

Behind that then you start to build up the capacity of having reusable features, bringing the turbine up to a velocity in which case the scram jet in hypersonics takes over. And so you then have a buildingblock approach and you have more confidence in your work from your expendable flight experience in the off-ramp that goes

into operational systems, and with more confidence it starts to give you the reliability that you need and durability for usable systems.

And so it is a stepping-stone approach that allows you then I believe to go out into those years of reusable flight regimes, into high MACH numbers, and potentially allowing ourselves another approach to access the space in highspeed flight that is reusable when you go out into those years. So I think that is a reasonable outcome as we evaluate each step of the way.

Mr. LANGEVIN. Thank you, gentlemen. I yield back, Chairman.

Mr. SAXTON. Well, I want to thank you for being here today. The stuff that you have over in the foyer is very impressive. It is certainly useful. Here is what I would like to suggest to you. I would like, Ron, to get together with you at some point for 2, 3 hours and talk about how we make these kinds of decisions where we invest our money based on the needs that are expressed by the services and based on some ideas that maybe some of us have trouble relating to, but I would like to look at the criteria that you use and the process that you use. And that will either make me feel better, or you and I can talk about how we might want to do it maybe in a little different way. So if we could do that, I would appreciate it.

And Tony, I am going to be knocking on your door, because I am not giving up on Al Beck.

Dr. TETHER. I am writing a note down here right now.

Mr. SAXTON. Yes, sir. And if this can in these two cases on mice, then I suspect it can work on monkeys, and that is where we need to go next. We need to test it on some number of monkeys. I think it is a hundred. And if it works on smallpox and if it works on anthrax, it probably works on a whole series of other diseases, weaponized or otherwise, and as I said before, 5 or 6 years ago when I started this thing, I thought there wouldn't—Al Beck convinced me to help him. I felt pretty funny at times because there were a lot of people in the scientific community that were—I felt like they were going out the door and smiling pretty—had a big old smile on their face because they didn't think it would work, but it is working. And I think it is at least revolutionary, and I think that DARPA ought to step in with George Mason University as a partner, not Al Beck anymore, although he is the scientist, with George Mason University as a partner and see if we can't get this to work, because it would not only be a great thing for our military people, it would be a great advancement in medicine.

So with that having been said, unless there are other people—some of my other colleagues that have questions or statements they want to make, I will thank you for being here and I will look forward to getting together with you to talk about this selection issue again. Thank you.

[Whereupon, at 4:44 p.m., the subcommittee was adjourned.]

APPENDIX

MARCH 25, 2004

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 25, 2004

Opening Statement of Congressman Jim Saxton
Chairman, Subcommittee on Terrorism, Unconventional Threats and Capabilities
House Armed Services Committee

Hearing on Defense Science and Technology Policy and Programs
March 25, 2004

Today, the Subcommittee on Terrorism, Unconventional Threats and Capabilities will hear testimony on the fiscal year 2005 budget request for the Department of Defense's science and technology program and plans and priorities for the future. We will discuss with Director of Defense Research and Engineering Ron Sega, the military departments' science and technology chiefs and the Director, Defense Advanced Research Projects Agency, how the program supports the Global War on Terrorism and what needs to be done to accelerate the identification, development, and transition of advanced technologies that are critical to Defense transformation.

In 1983, then Secretary of Defense Caspar Weinberger said:

> "We face the danger of losing our edge because we have not adequately replenished the reservoir of scientific concepts and knowledge to nourish future technologies..., we must systematically replenish the scientific reservoir, using the unique and diverse strength of the United States scientific community ... Given the relatively long lead time between fundamental discovery and applying such knowledge to defense systems, the true measure of our success ... may not be apparent for several decades. When the 'moment of truth' arrives, we cannot afford to be found wanting."

President Harry Truman summarized the issue more succinctly in 1945, when he said, "No aspect of military preparedness is more important than scientific research."

President Truman's and Secretary Weinberger's statements are no less true today. Technological superiority over our adversaries is a cornerstone of the U.S. national military strategy. Historically, a robust Defense science and technology program has been key to meeting the known needs for military capabilities, providing a technology bridge to new weapons systems during periods of reduced funding for development and acquisition, and enabling the development of totally new operational concepts and capabilities that are as yet unforeseen.

For the past two decades, previous Administrations and the Congress have faced the issues raised by President Truman's and Secretary Weinberger's statements. These issues confront the Bush Administration and the Congress today:

What should be the role of the federal government and the Department of Defense in supporting science and technology research and development?

On what technologies should the Defense S&T program focus?

What is the appropriate level of funding for the program?

How are we changing the program to support the Global War on Terrorism and Defense transformation?

How do we accelerate the transition of technology from the laboratory to the military user in the field?

What is the importance of the DOD laboratories to the program?

And, perhaps among the most important, what is needed to ensure the development of the "best and brightest" young scientists and engineers who will provide our country and its armed forces the advances in science, technology, and advanced systems and capabilities that will ensure our national security?

To address these issues we have a distinguished panel of witnesses from the Department of Defense:

The Honorable Ronald M. Sega
Director, Defense Research and Engineering

Dr. Anthony J. Tether
Director, Defense Advanced Research Projects Agency

Dr. Thomas H. Killion
Deputy Assistant Secretary of the Army for Research and Technology

Rear Admiral Jay M. Cohen
Chief of Naval Research

Mr. James B. Engle
Deputy Assistant Secretary of the Air Force (Science, Technology and Engineering)

Gentlemen, we welcome you and look forward to your testimony.

Opening Statement
The Honorable Martin Meehan (D-MA), Ranking Member
Subcommittee on Terrorism, Unconventional Threats and Capabilities
Committee on Armed Services
Hearing on "Fiscal Year 2005 Defense Department Budget Request for Science and Technology Accounts"
March 25, 2004

Thank you Mr. Chairman. I join you in welcoming our panelists. It's always great to see DoD's talented and all-too-familiar "S&T Team" led by Dr. Sega (SAY-guh). I would like to associate myself with the Chairman's opening remarks and offer few of my own. I strongly support this panel's across-the-board efforts to promote S&T investments, especially in fields that offer the promise of major advances in the near or not-too-distant future. For example, chemical and biological research, nanotechnology, innovative propulsion, and various information technologies can give us critical advantages – particularly in the areas of surveillance, battle management, and intelligence collection. As we learned last week in testimony from General Brown, Commander of Special Operations Command, the fight against terrorism is at its core "an intelligence-based problem." I certainly agree that actionable and accurate intelligence is essential, and I am interested in learning what we can do to help make sure we have the technological tools we need to gather this intelligence against terrorists. I would be curious to know what our panelists think about which areas are most important or promising.

In fact, I think it would be useful for them to rank order each area so we can get a better sense of the priorities of the Department and learn why such priorities are – or are not – emphasized. Mr. Chairman, again, I join you in welcoming everyone today and look forward to the testimony.

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TESTIMONY OF

RONALD SEGA

DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING

BEFORE THE UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON ARMED SERVICES

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS

AND CAPABILITIES

March 25, 2004

FOR OFFICIAL USE ONLY
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Introduction

Mr. Chairman, members of the committee, thank you for the opportunity to appear before you today to talk about the science and technology (S&T) program of the Department of Defense (DoD). S&T remains postured to support both the near term Global War on Terrorism (GWOT) and the transformation of DoD. We are excited about the capabilities and possibilities that continue to be opened by S&T throughout the Department. Secretary Rumsfeld stated in last month's FY05 Budget testimony that the Department and Congress have a common challenge: "to support the troops and to make sure they have what they will need to defend the Nation in the years ahead." The Department's S&T program is vital to the support of our troops and is simultaneously developing the capabilities for our future forces. While there are still many challenges, I believe the S&T program has been productive over the past year, and the increasing emphasis on accelerating the transition of technology is showing positive results.

As the Director of Defense Research and Engineering, serving in the role of the Department's Chief Technology Officer, I have established five priorities. These priorities facilitate the Secretary of Defense's goals. Our Research and Engineering goals are to:

- Integrate DoD S&T and focus on transformation
- Enhance technology transition
- Address the national security science and engineering workforce

- Expand outreach to the combatant commands and intelligence community
- Accelerate technical support to the war on terrorism

Taken together, these priorities provide a sound strategic roadmap to support the transformation of the Department of Defense, and where technology can help, address the immediate challenges of the Global War on Terrorism. We have strengthened the programmatic oversight processes over the past year to better ensure that the goals and objectives of the Department are met. We have revised the Joint Warfighting Science and Technology Plan (JWSTP) to better integrate and align our S&T program with the needs of Combatant Commands and the joint functional concepts. We have instituted focused reviews of the Defense Advanced Research Projects Agency (DARPA) activities to ensure the best integration of the DARPA research and results into the Department's coordinated research and engineering program. We have expanded reviews with the Components to assess technology maturity and enhance technology insertion in support of defense acquisition programs.

Integrate DoD S&T and Focus on Transformation

This goal strives for an integrated program across the DoD Services and Agencies that is aligned with transformational goals of the Department. Two enabling elements for this goal -- *how much* the DoD invests in S&T, and into *what technologies* the Department invests its S&T dollars.

The FY05 President's Budget Request is a solid budget proposal for S&T programs. The DoD request for S&T in FY05 is $10.553 Billion. The budget request achieves about 1.5% real growth in S&T, when compared to the FY04 President's Budget Request. The Department's S&T investment has increased from $7.8 Billion to $10.5 Billion in the last three years of the President's Budget Requests.

We are mindful however, that additional funding, without focus, will not ensure transformation. We have focused the budget request on several important technology areas that should enhance transformation and deliver critical military capabilities, and in addition, provide technology solutions to support the Global War on Terrorism. The FY05 President's Budget Request continues the direction of aligning S&T dollars to support the Department's six critical operational capabilities as outlined in the Quadrennial Defense Review. These capabilities are: protect bases of operations, deny enemy sanctuary, project and sustain US forces, enhance space operations, assure information operations, and leverage information technologies. Additionally, we continued with three broad, cross-cutting initiatives that address the development of DoD critical transformational technologies. These three initiatives have matured over the past year. They are the National Aerospace Initiative; Energy and Power Technologies, and Surveillance and Knowledge Systems. Finally, we continued to identify potential technologies for acceleration in support of initiatives for force protection of our remarkable men and women deployed in Afghanistan and Iraq.

An important point to emphasize is the continuing importance of basic research to enable the development of future military capabilities. In the past 20-30 years, basic research has spawned such advances as the Global Positioning System, Stealth, and Night Vision devices. The pace of technology development is increasing so the generation of new ideas through basic research remains a high-payoff component of the S&T program. The FY05 President's Budget Request for basic research is $1.3 Billion. Although the investment level for basic research remains constant, the payoff continues to produce significant discoveries, sometimes on a critically shortened time-scale. For example, the success of the thermobaric weapon is directly linked to the basic research in DoD. The thermobaric weapon went from basic research through operational testing in 90 days. Basic research also closely links the DoD with universities that provide a great breadth of leading edge research, some that can be applied in the very near-term. For instance, the technology used to decontaminate the Senate offices and federal facilities in the aftermath of the anthrax attack come from an on-going university-based basic research project. The university linkage is also key in the education of the future defense workforce.

Component Initiatives

The Army's Future Combat Systems is a complex transformational initiative that networks combat and support vehicles, unmanned air and ground systems, and soldiers together as an integrated system. As this system matures, it

will provide a revolutionary capability to move, shoot, communicate and defend. A technology solution called "ZEUS" is a good example of enhanced technology transition in support of the GWOT. ZEUS involves a HMMWV mounted laser neutralization system for unexploded ordnance. This technology has neutralized 10 different types of ordnance totaling 210 targets. The improved standoff range for ordnance neutralization enhances the safety of our troops.

The Air Force's major transformational projects derive from the envisioned joint battlespace infosphere capabilities. Those would provide technology for applications ranging from decision quality information to demonstrations of small and micro satellites that could dramatically enhance our ability to conduct enduring space operations. This movement to the transformational aspects of space and information is central to the Air Force's investment profile, and will support the entire Department.

The Navy's transformational programs include the electric ship which is an "umbrella" program to integrate an array of technologies that could provide an integrated propulsion, support, and weapons suite to maximize the capability of future naval operations. For the GWOT, the Naval Research Labs developed and prototyped Dragon Eye, a successful project currently deployed in Iraq. Dragon Eye is a lightweight, person portable unmanned aerial vehicle with a changeable sensor package. One such package allows for the collection and detection of chemical, biological, and radiological agents and provides a stand-off surveillance capability.

Our investment in the Defense Advanced Research Projects Agency (DARPA) continues to emphasize high-risk, high payoff research and development in a number of strategic thrust areas, as outlined in the DARPA Strategic Plan. I would like to highlight a DARPA-Service collaborative project that is supporting transformation in the Department and should ultimately provide a unique surveillance capability. The Organic Air Vehicle (OAV) is a small, man-portable unmanned aerial vehicle (UAV) that can fly and hover using a large horizontal fan. The UAV has been tested in 9, 15, and 29 inch diameter versions—and each can carry different payloads. This vehicle is being developed as a component of the Army's Future Combat Systems. DARPA's programmatic agility, when linked with Service programs, accelerates technology development and transformation.

Cross-Cutting Initiatives

One of the joint transformational technology initiatives is the National Aerospace Initiative (NAI), which consists of research and development in hypersonic flight technology, affordable and responsive space access, and an increased focus on space science and technology enablers.

NAI provides an integrated technology roadmap for the Department to increase our capability in several mission areas such as high speed/hypersonic flight, access to space, and space technologies. For example, hypersonic capability could provide an air breathing option to conduct strikes from strategic distance in a short amount of time, reducing vulnerability of future systems, and

help to deny enemy sanctuary. In the FY05 budget, the Department increased hypersonics funding primarily in support of the USAF-DARPA Single Engine Demonstrator (SED). The objective of the SED program is to flight test the Air Force Hypersonic Technology (HyTech) scramjet engine using hydrocarbon fuel accelerating a vehicle from boost (approximately Mach 4.5) to approximately Mach 7. The NAI also has the potential to capture American interest in aerospace technology, while providing needed technical capability for the warfighter.

A second transformational technology thrust is Energy and Power Technologies. This thrust involves a coordinated investment across the Department to improve power from systems such as microbatteries for soldiers to massive generators for ships. This initiative is investing in technology that could develop batteries with over five times the energy density, fuel cells that are reliable and safe to use in the battlefield, and capacitors that will decrease size needed to store electricity on ships by a factor of 5-10. The initiative is also focusing on "electric" weapon systems such as high power microwaves, lasers, and electromagnetic guns that will provide greater options for our forces.

The third cross cutting initiative is Surveillance and Knowledge Systems (SKS). SKS is a broad-umbrella program to develop capabilities to achieve information and decision dominance through integrated Communications, Command, Control, and Computers and Intelligence, Surveillance, and Reconnaissance systems (C4ISR). This initiative seeks to bring about major improvement in sensing, communications and networks, knowledge management,

and information security to provide superior decisions on shorter time scales than can be made by potential adversaries. Instead of treating each component separately, SKS has the goals of detecting objects in the area of interest (battlespace) through enriching sensors (optical, radar, acoustic, etc); moving the sensed information to present a coordinated picture of the area of interest; using advanced software to make sense of the information; and presenting this knowledge-based result to assist decisions. By using such an integrated approach, the goal is to allow our forces to react faster and smarter than potential adversaries. The initiative should continue to make the vision of network centric warfare a reality.

Enhance Technology Transition

The relevance of research and engineering efforts hinges on the rapid and effective transition of technology to fielded military forces. In partnership with Congress, we established the Quick Reaction Special Projects (QRSP) program, a flexible continuum of technology transition projects that moves products from the Department to the warfighter quickly. The QRSP includes three technology transition projects: the Quick Reaction Fund; the Technology Transition Initiative (TTI); and the Defense Acquisition Challenge Program (DACP). We leverage the Foreign Comparative Test and the Advanced Concept Technology Demonstration (ACTD) programs to get the best technologies to the joint warfighters in the shortest time possible.

The Quick Reaction Fund (QRF) meets critical warfighter technology requirements that cannot wait for the traditional two year budget cycle. In FY03 we started six projects, three of which have already deployed to support the war on terrorism in Iraq. We have continued rapid technology insertion from the QRF in FY04. This year funds were provided for the development of a HMMWV mounted wideband microwave based integration system, called PING, to identify concealed weapons. PING has seen positive results in testing. We also used the funds to demonstrate and test ordnance disposal robots, a capability that has saved lives in Iraq.

Last year we initiated the congressionally-directed Technology Transition Initiative (TTI). TTI provides bridge funding for critical technologies that have recently been evaluated for procurement and enables the Services to speed transition to acquisition programs of record. For example, the water purification pen provides warfighters the ability to purify water in unsanitary conditions. It is now available via the GSA Catalog for purchase from all government agencies. This technology transition was accomplished 18-24 months earlier than the normal acquisition process due to our ability to use TTI, and is being used today by warfighters in Iraq and Afghanistan.

Under the direction of our new Comparative Test Office, the Defense Acquisition Challenge (DAC) program and the Foreign Comparative Testing (FCT) program inject the very best domestic and foreign technologies into existing capabilities, supporting the Department's spiral development strategy. Through

the FCT program, we significantly enhanced the Army's Automatic Chemical Agent Detector Alarm (ACADA). The advanced power supply for this sensitive Chem/Bio detector was obtained from the United Kingdom. The power supply improved unit reliability and significantly reduced equipment weight. Over 22,000 of these detectors are deployed worldwide, protecting forces in Afghanistan, Iraq, and even those of us sitting here in the Capitol region.

In the DAC program, we selected 23 proposals from nearly 300 submittals. One example is an especially promising technology which provides hemoglobin substitute for blood transfusions project known as the Restore Effective Survival in Shock (RESUS). We believe RESUS has the potential to dramatically increase the survivability of our troops. This remarkable polymerized hemoglobin is compatible with all blood types, can be stored for 3 years without refrigeration, and is pathogen free. The support Congress has provided to the QRSP program has enabled execution year flexibility to support new needs of the operational force and new technology opportunities.

The Advanced Concept Technology Demonstration (ACTD) program is our flagship technology transition process for matching innovative technologies with joint and coalition operational concepts. This program earned a reputation for anticipating emergent threats and fielding transformational capabilities for Combatant Commands. Sometimes referred to as our "try before you buy" approach, ACTDs look for the 80% solution to jump start the acquisition process through fielded, hands-on demonstrations. For example, we successfully

demonstrated the high-speed lift capability of the Theater Support Vessel ACTD in real-world operations during OIF. Our Language and Speech Translator ACTD enabled us to quickly decipher confiscated documents which led to the location of several high profile Iraqi leaders. These and many other successful ACTDs draw the thanks of warriors engaged in OEF and OIF.

Address the National Security Science and Engineering Workforce

The third DDR&E goal is a broad national strategic issue involving the availability of scientists and engineers who are American citizens. Warfighting capabilities demonstrated on the battlefield since Operation Desert Storm are derived from the Department's technological capabilities developed within DoD research and development (R&D) laboratories, industry, and universities. These capabilities were built on the intellectual capital and competitiveness of the scientists and engineers, educated years earlier, who conceived the scientific ideas and engineering applications that became our present warfighting capabilities. We produced stealth technology, the global positioning system, night vision devices, precision weapons and pioneered the development of the internet through the "ARPANET" with the U.S. technical talent educated primarily in the 1960s and 1970s.

We now see warnings that America's advantage in defense-related scientific and engineering intellectual capital is eroding. The significance of this problem is outlined in the Report of the U.S. Commission on National Security in

the 21st Century (Hart-Rudman Report) which stated: "Second only to a weapon of mass destruction detonating in an American city, we can think of nothing more dangerous than a failure to manage properly science, technology, and education for the common good over the next quarter of a century". The decreasing numbers of experienced scientists and engineers in the DoD draws from the available pool of high quality scientists and engineers who are U.S. citizens. The numbers of U.S. citizens in graduate schools studying defense related disciplines has decreased in the last decade according to National Science Foundation, National Science Board and National Academy of Sciences reports.

To begin to address these issues, over the past year the Department has increased the individual stipend and total number of National Defense Graduate Fellowships. In addition, we are continuing to examine our future workforce needs to ensure that we will have the best technical talent available for national security R&D.

Expand Outreach to the Combatant Commands and Intelligence Community

We are enhancing the connectivity between the Combatant Commands and the Intelligence Community and the DoD technology community. Over the past year, we have revised our S&T strategic planning approach, leading to a wholly revised "Joint Warfighting Science and Technology Plan" that was cooperatively developed by the Combatant Commands, Joint Staff, and S&T Executives. We have also initiated several technology net assessments in partnership with the

intelligence community to reduce the possibility of technology surprise in the future and better inform our S&T investment plans.

Accelerate Support to the War on Terrorism

Maturing and fielding technology continues to be our most important near term goal. Within a week of the attacks of September 11, 2001, the Department established the DoD Combating Terrorism Technology Task Force (CTTTF). This Task Force is still on-going, and is in its third major phase. The first phase accelerated technologies for homeland defense and the initial war in Afghanistan; the second phase delivered technology in support of the war in Afghanistan and Iraq. The current third phase is identifying and accelerating technology for deployed force protection. The Task Force is comprised of S&T senior leaders from all DoD Components, flag-level officers from the Joint Staff and selected Combatant Commands, the Central Intelligence Agency, the Department of Energy, and now the Department of Homeland Security. The CTTTF continues to provide a valuable forum to examine the technology alternatives to address immediate operational needs to support the GWOT.

Phase I in the Fall of 2001, resulted in such capabilities as the BLU-118B (thermobaric weapon) with applications to caves and tunnels, a backscatter gamma ray system to inspect cargo in closed containers, and a nuclear quadripole resonance system that can detect small quantities of explosives. We also sponsored a rapid study to determine radiation levels needed to kill anthrax

spores—knowledge that supported the detailed response to the anthrax attacks of 2001.

In Phase II, the CTTTF reacted to a broad set of operational issues that emerged leading up to and including support for Operation Iraqi Freedom. Technologies were accelerated to fielding for several specialized, unique weapons which focused on specific, anticipated threats. Notable among these was the AGM-114N Thermobaric Hellfire which built upon previous efforts supported by the CTTTF in development of thermobaric weapons which were employed in Afghanistan in Operation Enduring Freedom. The CTTTF sponsored the Passive Attack Weapon to rapidly transition an Advanced Technology Development prototype program to production, fielding 230 weapons in 160 days. This effort included weapons production, development of operational tactics, delivery aircraft certification, field testing, certification, and deployment.

In the current Phase III, the Task Force's focus has been directed at Operation Iraqi Freedom force protection capabilities. While specific details on programs are classified, actions are underway to mitigate effects stemming from terrorist use of weapons such as Improvised Explosive Devices (IEDs), mortars, and rocket propelled grenades. Key focus is on detection and defeat of IEDs and on predictive analysis capabilities.

The CTTTF will continue to serve as a conduit for matching the identification of new challenges in the GWOT with available technologies developed both by the DoD, through commercial sources, and with other

Departments of the Federal Government. A key element of this effort is the need to have in place a process and funding to quickly identify, and then field, in militarily significant numbers, a series of new capabilities. The nature of the current operations indicates that the opponents, while often using low technology weapons, are very adaptive. We need the processes and flexibilities to anticipate, respond to, predict, and mitigate their adaptation cycles if we are to be successful in this long-term struggle.

Conclusion

The sustained investment in science and technology over the past decades has enabled the Department's development of needed new capabilities. To enable transformation, this investment should continue. Technology development results are largely achieved through long-term, stable investment in R&D. Not every technology needs to be transitioned immediately, but a strong R&D base is critical. Although, the FY05 President's Budget Request does focus on transformation technologies, it also maintains the flexibility to respond to near term operational requirements and technology opportunities. The balance has been, and remains important.

In closing, the S&T program and the objective of Secretary Rumsfeld to provide transformational capabilities to the DoD are absolutely intertwined. I have mentioned only a few examples within the DoD S&T program. I believe the DoD successes in technology and transformation are significant, and I appreciate

the opportunity to come before you today to tell you about them. We appreciate the support the House Armed Services Committee has provided for the Department's S&T program. Thank you.

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Statement by

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NOT FOR PUBLICATION UNTIL RELEASED BY THE SUBCOMMITTEE

Mr. Chairman, Subcommittee Members and staff: I am pleased to appear before you today to discuss the Defense Advanced Research Projects Agency's (DARPA) Fiscal Year (FY) 2004 activities and our FY 2005 plans to continue to transform our military through technological innovation.

Let me begin by saying a few words about the DARPA.

Since the time of Sputnik, DARPA has had a special mission within the Department of Defense (DoD): maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security. DARPA does this by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use long before our adversaries can do so.

Two simple questions help illustrate much of our mission:

- "What technologies would allow an adversary to surprise the U.S.?" and
- "What technologies are needed to ensure that US forces will always have new capabilities to surprise our adversaries?"

A historical example of this DARPA's development of stealth – a dramatic technological capability that is one of our military's greatest asymmetrical advantages.

As a Defense Agency, DARPA is part of the Office of the Secretary of Defense and is the DoD's only research agency not tied to a specific operational mission. DARPA is designed to be the "technological engine" for transformation, supplying technological options for the entire Department.

This is a unique role within DoD. The Department's operational components focus on nearer-term needs because they must meet urgent needs and requirements. Consequently, a large organization like the DoD needs an organization like DARPA whose *only* charter is radical innovation. We try to imagine what a military commander might want in the future and accelerate that future into reality by changing people's minds about what is technologically possible.

DARPA's Eight Strategic Thrusts

Through the years, DARPA has continuously refocused its work in direct response to evolving national security threats and technological opportunities. The eight strategic research thrusts that DARPA is emphasizing in response to emerging trends are:

- Detection, Precision ID, Tracking, and Destruction of Elusive Surface Targets
- Force Multipliers for Urban Area Operations
- Location and Characterization of Underground Structures
- Networked Manned and Unmanned Systems
- Robust, Secure Self-Forming Tactical Networks
- Cognitive Computing
- Assured Use of Space
- Bio-Revolution

Force Multipliers for Urban Area Operations is a new area that we have begun this year, partly in response to what we have all seen in Iraq and Afghanistan, and the increasing likelihood that conflict in the future will be fought in cities.

Let me tell you about these eight thrusts, the forces driving them, and illustrate them with some examples.

Detection, Precision ID, Tracking, and Destruction of Elusive Surface Targets

For many years, the Department of Defense has steadily improved its ability to conduct precision strike. Timely, accurate, and precise delivery of bombs and missiles helped the United States overthrow hostile regimes in Afghanistan and Iraq in short order with few American or unintended casualties. However, our experience shows that major challenges remain in target detection, identification, and tracking. It is still difficult to strike targets that are hiding, moving, or that require U.S. forces to react rapidly to destroy them.

Providing a focused response to these challenges, DARPA is assembling the necessary sensors, exploitation tools, command systems, and information technologies to rapidly find and destroy ground targets in any terrain, in any weather, moving or not, at any time, with minimum accidental damage or casualties. To do this, we are working to seamlessly meld sensor tasking

with strike operations, leveraging platforms that carry both capable sensors and effective weapons.

Of course, this blurs or even erases barriers between the Intelligence and the Operations functions at all levels of command. This is a difficult technical challenge that requires a joint approach and has potentially large implications for U.S. military doctrine and organizations.

DARPA is supporting research in four general areas: sensors to find targets; sensor exploitation systems to identify and track targets; command and control systems to plan and manage the use of sensors, platforms, and weapons throughout the battlespace; and information technology to tie it all together and ensure the effective dissemination of information.

DARPA's sensor work is exemplified by the Standoff Precision Identification in Three Dimensions (SPI-3D) program to develop an airborne LIDAR sensor to provide positive target identification from standoff ranges via high resolution three-dimensional representations. SPI-3D will be cued by wide area surveillance sensors, such as synthetic aperture radar, which can determine the presence of possible targets but may be unable to confirm target type or identity. SPI-3D technology will close this gap, allowing commanders to positively identify targets as needed by our rules of engagement.

The Jigsaw program is developing a three-dimensional imaging laser radar capable of reliably identifying hidden targets through gaps in foliage and camouflage. The Jigsaw sensor will collect high-resolution, three-dimensional images from multiple viewpoints and combine them to form a composite three-dimensional image to enable the warfighter to see underneath the canopy and recognize targets, day or night. In field tests, we have successfully integrated, tested, and flown prototypes against targets hidden by various densities of foliage and types of camouflage. We are proceeding to ruggedize and miniaturize the Jigsaw sensor for the Army's Future Combat Systems.

The National/Tactical Exploitation (NTEX) program uses imagery and data from both national reconnaissance systems and tactical assets to locate and identify enemy air defense units. During Operation Iraqi Freedom, NTEX supported our forces in Iraq by screening synthetic aperture radar imagery to look for enemy air defense emplacements.

Other DARPA programs have performed significant demonstrations. These programs have: located short-duration emitters with high accuracy; detected dismounted soldiers moving through trees; identified ground vehicles from acoustic/seismic sensor networks; maintained track on designated vehicles through obscured terrain; and delivered precision munitions to destroy moving tanks and trucks from 30 kilometers away.

Force Multipliers for Urban Area Operations

Urban area operations can be the most dangerous, costly, and chaotic forms of combat. The number of military operations in urban areas is increasing, and this trend will likely continue for the foreseeable future. By 2025, nearly 60 percent of the world's population will live in urban areas. Adversaries will seek to fight U.S. forces in cities as a way to mitigate the U.S's superior ability to quickly destroy fixed and mobile targets in open and semi-concealed terrain. Accordingly, DARPA has created a new strategic thrust, Force Multipliers for Urban Area Operations.

The basic idea is to do for the extremely complex urban environment what has been done for open terrain combat: find and use technology that significantly increases U.S. forces' power and flexibility so that fewer forces are required to accomplish the mission.

If successful, new urban warfare concepts and technologies would enable U.S forces fighting in or stabilizing a city to achieve the same or greater overall effect as a larger force using current technology.

Some initial concepts suggest making strong use of the vertical dimension for entry and attack. Other ideas focus on bringing situational awareness quickly into the complex urban battlespace. Information should flow smoothly from prehostilities intelligence into a tactical network that quickly disseminates information. The goal is to ensure U.S. forces can find and neutralize the enemy wherever he is located – on the streets, inside buildings, or hidden in underground bunkers.

To achieve this vision, reconnaissance, surveillance and target acquisition (RSTA), firepower, and communications must be robust, persistent, integrated, and immediately available. Firepower might include highly responsive precision air and ground fires, or even loitering and soldier-launched weapons, all networked directly to RSTA sensors.

Command and control systems to improve the collaboration at all echelons and on-demand, precise air delivery of forces and supplies to the ground are also key elements. Situational awareness of combatants and noncombatants will be critical to avoiding fratricide and targeting noncombatants.

DARPA has some programs underway already. We are exploring ways to navigate accurately inside buildings and underground in tunnels. Other programs seek to allow forces to accurately determine a building's layout before they enter, along with capabilities to determine whether hostile personnel are hiding in the building.

Location and Characterization of Underground Structures

Many potential U.S. adversaries are well aware of the U.S. military's sophisticated intelligence, surveillance, and reconnaissance capabilities and global reach, so they have been building deeply buried facilities to hide what they are doing and to harden themselves against attack. These facilities can vary from the clever use of caves to complex, carefully engineered bunkers. Possible uses of such installations include ballistic missile basing, leadership protection, command-and-control, and the production of weapons of mass destruction.

To meet the challenge posed by the spread of these facilities, DARPA's Counter-Underground Facility program is developing and using a variety of sensor technologies – seismic, acoustic, electro-optical, radio frequency, and chemical – to locate and characterize underground facilities. The program is working on tools to answer the questions, "What is this facility for? How busy is it now? What are its structures and vulnerabilities? How might it be attacked? Did our attack destroy the facility?"

To provide answers, DARPA has improved ground-sensor sensitivity by two-orders-of-magnitude, and also developed advanced signal processing for clutter rejection in complex environments like cities. Underground facility characterization and battle damage assessment will be demonstrated using these advanced systems later this year. New initiatives in this arena include wide-area search for the detection of unknown urban underground facilities on rapid (i.e., tactical) timescales, and work to determine the interconnectivity of urban facilities and caves.

Networked Manned and Unmanned Systems

DARPA is working with the Army, Navy, and Air Force toward a vision of filling the strategic and tactical battlespace with unmanned systems that are networked with manned systems. The idea is not simply to replace people with machines, but to team people with autonomous platforms to create a more capable, agile, and cost-effective force, and one that also lowers the risk of U.S. casualties. The use of unmanned aerial vehicles (UAVs) in Afghanistan and Iraq clearly demonstrates the value of this idea.

Much of the activity in this area is expected to transition to the Services over the next few years.

Two broad trends have combined to make this thrust feasible. First, there is an increasing appreciation within the Services that combining unmanned with manned systems can enable new combat capabilities or new ways to perform hazardous missions. Second, improved processors and software permit the major increases in on-board processing needed for unmanned systems to handle ever more complex missions in ever more complicated environments. Moreover – and this is key – networking these vehicles in combat can improve our knowledge of the battlespace, targeting responsiveness and accuracy, the survivability of the *network* of vehicles, and mission flexibility. A network of collaborative systems is far more capable than the sum of its individual components. If I may borrow from a commercial slogan, "The network is the force."

A prominent program in this area has been Future Combat Systems (FCS). FCS is aimed at developing collaborative manned and unmanned Army units as lethal and survivable as an M1 Abrams-based heavy force, but as agile as a light force. The Army assumed leadership of the FCS program from DARPA in FY 2003. Since the Army is using a spiral development approach in FCS, DARPA will continue to develop technology for the program, particularly communications networks and tactical UAVs.

More recently, the Office of the Secretary of Defense established the Joint Unmanned Combat Air Systems (J-UCAS) program at DARPA to accelerate the Department's progress in making networked unmanned combat air vehicles a reality for suppressing enemy air defenses, precision strike, and persistent surveillance. The program is a joint DARPA, Air Force, and Navy program, building on DARPA's earlier work on unmanned combat air vehicles for the Air Force and Navy. DARPA will lead the program until it reaches the point of operational assessments, at

which time a transition to the Services will begin. The program will develop new air vehicles, but it is crucial to understand that the heart of the J-UCAS system will be the network that combines those vehicles with each other and with other systems to create an entirely new type of fighting force.

Complementing J-UCAS is DARPA's Unmanned Combat Armed Rotorcraft (UCAR) program with the Army, which aims to transform how the Army conducts armed reconnaissance and attack.

I'd like to give you an update on DARPA's first Grand Challenge event, held almost two weeks ago in the southwestern desert. It was designed to accelerate the Department towards meeting the Congressional goal that one-third of our operational ground combat vehicles be unmanned by 2015.

A few years ago, Congress gave DARPA the authority to award prizes for technical accomplishments. This is similar to the prize awarded to Charles Lindbergh for his solo flight to Paris. We used our prize authority to hold our first Grand Challenge on March 13th.

The challenge was for an autonomous, unmanned ground vehicle to go 142 miles, across the desert back-roads between Barstow, California, and Primm, Nevada, in under 10 hours. The team that built the first vehicle to do it would be awarded one million dollars. And that was the only money they would get from the government.

We had two reasons for picking this Grand Challenge. First, we wanted to promote technology important to our national defense, technology that will eventually take more Americans off the battlefield and save lives as we let robots do the driving in things like supply convoys. Second, we wanted the challenge to be something that anybody could participate in. Our goal was to reach out and involve people who would never ordinarily be found working on a problem for the DoD.

Over 100 entrants filed applications to compete. Of the 25 teams invited to the qualifying tests, 21 vehicles showed up.

And what an amazing variety of vehicles! They varied from completely homebuilt vehicles to modified SUVs. One had tracks, some had four wheels, others six and one was a motorcycle.

Some weighed a few hundred pounds, one weighed 16 tons. They were built by high school student, college undergraduates, moonlighting engineers, technicians, software enthusiasts and backyard mechanics. Many had multiple private sponsors, and one was partly financed by winnings from the television game show "Jeopardy."

The qualification tests showed that 15 of the vehicles were safe enough to go out on the route. The teams got their first look at the route approximately two hours before the early morning start of the event on March 13th. Nearly all vehicles made it out of the starting gate. Four of the vehicles made it from five to seven miles, and another four made it roughly one mile from the start point before the challenge of autonomous, robotic driving -- or the perils of the dirt roads – caught up with them. We had asked them to do something incredibly difficult, but their enthusiasm never waned.

You should also know that throughout all this we put a huge effort into protecting the environment, particularly the desert tortoise. We worked with the U.S. Bureau of Land Management, the Fish and Wildlife Service, and the California Bureau of Land Management to make sure we had a good plan and the right procedures. On the day of the event, a team of about 20 biologists was out in the field to protect the tortoise. I am pleased to report we had no problems.

The output of the Grand Challenge was far more important than just the technology in the vehicles, even if it is harder to measure. All across the nation, from garages to high schools, from universities to corporate laboratories, thousands of people worked on solving a problem important to the DoD.

Anyone who was in the stands that day or talked to any of the teams cannot have helped but notice the incredible energy and enthusiasm in the air, a can-do spirit of innovation. This event planted seeds that will lead to many more talented people working on this problem and ones like it.

Lindbergh's feat did not create a tremendous new technology. What he did was show what was possible, what the future would look like, and excite people about aviation. And that excitement brought talent, and that talent created huge progress in the years that followed.

We would have liked to have paid out that million dollars this year, but what we really got was absolutely priceless.

So we will run the Grand Challenge again in 12 to 18 months. But this time the prize will be two million dollars. And the Palos Verdes High School team said that next time everybody else better watch out for them, because next time they will have *seniors* on their team!

Robust, Secure Self-Forming Tactical Networks

The Department of Defense is in the middle of a transformation to what is often termed "Network Centric Operations." In simplest terms, the promise of network centric operations is to transform information superiority into combat power. The U.S. and coalition allies will have better information to collaborate, share knowledge, and synchronize joint operations far more quickly and effectively than our adversaries. In essence, this next level of networking will use "better brains" to create a more agile and effective brawn.

At the heart of this concept are survivable, assured, spectrum-agile communications, encompassing both the strategic and tactical levels. The goal of this work is a high capacity network that degrades gracefully under attack, while always providing a critical level of service.

DARPA is conducting research in areas including self-forming, *ad hoc* networks; high capacity, multiband, multimode communications systems; ultra-wideband communications; spectrum sharing; information assurance; and low probability of detection/intercept/exploitation communications.

The Optical and Radio-Frequency Combined Link Experiment program will combine large-bandwidth, free-space optical communications with radio frequency communications to demonstrate compact, robust, high bandwidth mobile communications for our military forces. This hybrid of optical and radio frequency technologies will yield higher performance than either could achieve on its own.

An example of how DARPA's work in component technology are enabling these robust networks is the wristwatch-sized Chip-Scale Atomic Clock. Microelectromechanical systems (MEMS) technology will put an entire atomic clock onto a single chip, reducing its size and power consumption by factors of 200 and 300, respectively.

At the heart of a communication network is a common time reference.

These chip-scale atomic clocks will greatly improve the mobility and robustness of military communication and navigation devices by giving everyone a near perfect time reference that cannot be disrupted. These clocks will improve communications channel selectivity and density and enable ultra-fast frequency hopping for improved security, jam-resistance, and data encryption.

In GPS receivers, they will greatly improve the jamming margin and help continuously track positions and quickly reacquire a GPS signal. And in surveillance systems, they will improve the resolution of Doppler radars and help locate radio emitters.

Borne out of the need for rapid and efficient utilization of the shrinking military bandwidth, the neXt Generation (XG) Communications program will make 10 to 20 times more radio frequency communication spectrum available to the U.S. military by dynamically sharing unused spectrum across frequency, time, and space.

It turns out that, on average, only a small portion of the spectrum is actively used at any given moment, even though most of the spectrum is licensed exclusively for its users 100 percent of the time. The key question becomes whether an XG system can exploit underutilized spectrum without interfering with the original licensee.

The threat to military networks from computer worms that have never been seen before, and that exploit previously unknown network vulnerabilities ("zero-day worms"), has exceeded commercial industry's ability to mount an adequate defense. The Dynamic Quarantine of Worms (DQW) program will develop a system of integrated detection and response that will dynamically quarantine computer worms. The DQW program is focused on zero-day worms and stealthy worms that try to slip into military networks undetected.

It may be nearly impossible to stop the initial infection from a zero-day worm. DQW's strategy is to quarantine the worm in a section of the network. "Vaccines" can then be automatically synthesized and distributed to protect other networks from a large-scale infection.

Cognitive Computing

Many elements of the information technology revolution that have vastly increased the effectiveness of the U.S. military and transformed American society, including time-sharing, personal computers, and the Internet, were given their impetus by a visionary scientist at DARPA some 40 years ago, J. C. R. Licklider. Licklider's vision was of people and computers working together symbiotically. He envisioned computers seamlessly adapting to people as partners that would handle routine information processing tasks. This would free people to focus on what they do best – think analytically and creatively – and, thereby, greatly extend their cognitive powers.

Despite enormous and continuing progress in information technology over the years, computer capabilities are still well short of Licklider's vision. Current computing systems are critical to U.S. national defense, yet they remain exceedingly complex, expensive to create and debug, insecure, unable to easily work well together, and prone to failure. And, they still require the user to adapt to them, rather than the other way around. Computers have grown ever faster, but they remain fundamentally unintelligent and difficult to use. Something dramatically different is needed.

In response, DARPA is again tackling Licklider's vision in a strategic thrust called "Cognitive Computing." Cognitive computers can be thought of as systems that know what they're doing.

Cognitive computing systems will be able to reason about their environments (including other systems), their goals, and their own capabilities. They will be able to learn both from experience and by being taught. They will be capable of natural interactions with users, and will be able to explain their reasoning in natural terms. They will be robust in the face of surprises and avoid the brittleness and fragility of today's supposed expert systems.

The fundamental importance of Cognitive Computing was underscored in a statement by Microsoft Chairman, Bill Gates: "If you invent a breakthrough in artificial intelligence, so machines can learn ... that is worth 10 Microsofts." Mr. Gates' statement goes beyond just economics: this research, if successful, will bring profound changes to the way DoD uses computers to conduct operations.

Assured Use of Space

The national security community, including the U.S. military, use space systems to provide weather data, warning, intelligence, communications, and navigation. These satellite systems provide our national security community with great advantages over potential adversaries. American society as a whole also uses space systems for many similar purposes, making them an integral part of the U.S. economy and way of life.

These advantages – and the dependencies that come with them – have not gone unnoticed, and there is no reason to believe they will remain unchallenged or untested forever. As the Rumsfeld Commission explained, "An attack on elements of U.S. space systems during a crisis or conflict should not be considered an improbable act. If the U.S. is to avoid a 'Space Pearl Harbor,' it needs to take seriously the possibility of an attack on U.S. space systems."

DARPA began as a space agency, when the shock of Sputnik caused Americans to believe that the U.S.'s Cold War adversary had seized "the ultimate high ground." Over time, U.S. space systems have become one key to our military advantage. DARPA, once again, is taking a major role in this important technological area.

In FY 2001, the Secretary of Defense directed DARPA to begin an aggressive effort to ensure that the U.S. military retains its pre-eminence in space by maintaining unhindered U.S. access to space and protecting U.S. space assets from attack.

There are five elements in DARPA's space strategic thrust:

- *Access and Infrastructure:* technology to provide rapid, affordable access to space and efficient on-orbit operations;
- *Situational Awareness:* the means for knowing what else is in space and what that "something else" is doing;
- *Space Mission Protection:* methods for protecting U.S. space assets from harm;
- *Space Mission Denial:* technologies that will prevent our adversaries from using space to harm the U.S. or its allies; and
- *Space-Based Engagement:* reconnaissance, surveillance, communications, and navigation to support military operations down on earth – extending what the U.S. does so well today.

DARPA is focusing most of its efforts on the first four of these thrusts, while the efforts in Space Based Engagement are emphasizing technology complementary to research being done by the National Reconnaissance Office.

Three examples of DARPA's space programs are Responsive Access, Small Cargo, Affordable Launch (RASCAL); Innovative Space-Based Antenna Technology; and Force Application and Launch from the Continental U.S. (FALCON).

RASCAL is designed to place small payloads in orbit on a moment's notice by launching them from a high-speed, high-altitude, reusable aircraft that eliminates a large and expensive first stage booster. RASCAL is aimed toward a system to place 50- to 130-kilogram satellites and commodity payloads into low earth orbit at any time, at any inclination, and with a launch cost that is less than a third of current capabilities for the dedicated micropayload size. The first RASCAL launch is planned for 2007.

The Innovative Space-based Antenna Technology (ISAT) program is developing revolutionary large antenna technologies that could one day enable large, yet affordable, space-based radar (SBR) systems capable of operating at medium earth orbit (MEO). These antennas would be extremely lightweight (approximately five kilograms per square meter), compact (approximately 400 cubic meters, fully stowed), and affordable. They are designed to meet the stressing requirements of continuous, tactical-grade tracking of ground moving targets for intelligence, surveillance, and reconnaissance. MEO-based SBR would enable persistent, continuous coverage of ground mobile targets with far fewer satellites than that required with constellations based in low earth orbit. The first ISAT space-based demonstration launch is planned for 2009.

FALCON is designed to vastly improve the U.S. capability to reach orbit or almost anywhere on the globe promptly from bases in the continental U.S. This will improve the military's ability to strike fleeting targets far overseas or quickly position intelligence, surveillance, and reconnaissance payloads and reduce its reliance on forward and foreign basing. FALCON will proceed in stages, including a small, low-cost launch vehicle, a common payload vehicle, and eventually a hypersonic vehicle. The ultimate goal is to be able to deliver 12,000 pounds of payload 9,000 miles away in less than two hours. The technology required for FALCON will drive major progress in achieving low-cost, responsive access to space.

Bio-Revolution

DARPA's strategic thrust in the life sciences, dubbed "Bio-Revolution," is a broad effort to harness the insights and power of biology to make U.S. warfighters and their equipment safer, stronger, and more effective.

Over the last decade and more, the U.S. has made an enormous investment in the life sciences. DARPA is mining these new discoveries for concepts and uses that could enhance U.S. national security in revolutionary ways.

There is a growing recognition of synergies among biology, information technology, and micro/nano technology. Advances in any one area often benefit the others, and DARPA has been active in information technology and microelectronics for many years. DARPA is able to bring many disciplines together with biology to use new biological knowledge in novel ways.

DARPA's Bio-Revolution thrust has four broad elements:

- *Protecting Human Assets* refers to DARPA's work in Biological Warfare Defense (BWD). DARPA's comprehensive BWD program began in the mid-1990s in response to a growing awareness of the biological warfare threat to the U.S. It covers sensors to detect an attack, technologies to protect people in buildings and manage the response to an attack, vaccines to prevent infection, therapies to treat those exposed, and decontamination technologies to recover the use of an area.
- *Enhancing System Performance* refers to creating new mechanical systems with the autonomy and adaptability of living things by developing materials, processes, and devices inspired by living systems. For example, DARPA-supported researchers are studying how geckos climb walls and when legs have advantages over wheels and tracks. The idea is to let nature be a guide toward better engineering.
- *Maintaining Human Combat Performance* is aimed at ensuring that humans don't become the weakest link in fast-paced, combat operations. The goal is to learn what we can from the life sciences to keep the individual warfighter as strong, alert, and endurant as he or she was before deploying, and to be able to administer self-help when battlefield injuries occur.
- *Tools* are the variety of techniques and insights on which the other three areas rest.

Let me give you some example of our work here.

DARPA Bio-Revolution work started in the mid 1990s with novel technologies for biological warfare defense (BWD). Over the past three years, DARPA's Triangulation Identification for Genetic Evaluation of Biological Risk (TIGER) program has developed and demonstrated a biowarfare agent detection and identification sensor that can rapidly identify any human pathogen and quantify how much pathogen is present. This sensor has performed successfully, even in the presence of complex samples that would cause state-of-the-art sensors to trigger false alarms. TIGER's flexibility and speed was demonstrated during the SARS epidemic of 2003, when the sensor was quickly configured to detect the presence of the SARS virus in patient samples.

Two years ago, prompted by the attacks on the Congress, we started an aggressive effort to eliminate the threat of anthrax. This year we are completing our investments in six highly novel technologies. One of those approaches, CpG, boosts the immune system and enhances the effectiveness of the anthrax vaccine, and is entering the FDA's Investigational New Drug testing protocols. If CpG works in humans, we should be able to rapidly immunize troops and "stretch" the vaccine stockpile. Two other promising approaches are directed towards later-stage anthrax infections: one uses enzymes from phages, natural predators of specific bacteria, to kill the anthrax outright; and the second uses a protein to block the assembly of the anthrax toxin.

To find new approaches to locomotion and control, researchers in our Enhancing System Performance programs are studying such things as how insects run over rough terrain, and how flies avoid capture. For example, RHex is a wirelessly controlled robot with legs that mimics the movement of a cockroach. RHex has demonstrated that its legs help it move across difficult terrain that would stop a tracked or wheeled vehicle, such as rubble piles and railroad tracks. The robot is being developed further with integrated sensors for the military.

We have also demonstrated a synthetic optical lens that mimics the advantages of biological lenses by emulating the elegant, adaptable lens structure of a fish eye. This bio-inspired, reconfigurable lens system has the potential to produce a 30x zoom, yet be compact enough to be carried on a small unmanned aerial vehicle.

In order to markedly improve our ability to provide blood products whenever and wherever needed, DARPA's program in long-term storage of blood products has already demonstrated a radical breakthrough in preserving platelets, a key to stopping severe bleeding. Current standards mandate that platelets be stored for only five days under refrigeration and with constant stirring. This storage requirement makes them extremely hard to transport and store at the front of the battlefield. We have found a way to preserve platelets for up to two years without refrigeration, with complete preservation of clotting function. Current data indicate that we will be able to extend this technology to red blood cells in the near future.

DARPA's program in preventing cognitive degradation as a result of sleep deprivation illustrates how the Bio-Revolution will help maintain our troops' combat performance. This program is researching an investigational therapy for Alzheimer's dementia, Ampakine, which also seems to mitigate the effects of fatigue so that soldiers can stay mentally sharp and effective for extended periods without using any of the current generation of stimulants.

Here are what we hope some of our other Bio-Revolution programs will find ways to do:

- Reduce acute pain more effectively and safely than morphine without hindering a warfighter's cognitive abilities;
- Greatly improve the first aid that troops in far-forward areas can give themselves when injured; and
- Enhance our warfighters' stamina with a heating/cooling mitt that may enable them to regulate internal body temperature and function longer in extreme environments. These mitts have actually been used by several professional and college athletes.

This research is tailored to maintaining the performance of our troops in the specific and unique environments they encounter in combat. This is a special population with special problems and the Food and Drug Administration must approve any treatment before it can be used.

Perhaps the program that best exemplifies the "revolution" in Bio-Revolution is the Human Assisted Neural Devices program. This program is finding ways to detect and directly decode signals in the brain so that thoughts can be turned into acts performed by a machine. This has actually been demonstrated, to a limited degree, with a monkey that was taught to move a telerobotic arm simply by thinking about it.

The long-term Defense implications of finding ways to turn thoughts into acts, if it can be developed, are enormous. The nearer-term benefit will be to our injured veterans, who would be able to control prosthetics in a natural way never before imagined. DARPA's researchers are working with the Veteran's Administration to make this a reality.

DARPA's Core Technology Foundations

While DARPA's eight strategic thrusts are strongly driven by national security threats and opportunities, a major portion of DARPA's research emphasizes areas largely independently of current strategic circumstances. These core technology foundations are the investments in fundamentally new technologies, particularly at the component level, that historically have been the technological feedstocks enabling quantum leaps in U.S. military capabilities. DARPA is sponsoring research in materials, microsystems, information technology, and other technologies that may have far-reaching military consequences.

In fact, these technologies often form enabling chains. Advanced materials led to new generations of microelectronics, which, in turn, led to new generations of information technology. And information technology is the key technology for Network Centric Operations.

DARPA's support of these foundations naturally flows into its strategic thrusts with a fair amount of productive overlap. For example, some of the work under the Bio-Revolution thrust could also be considered part of the materials work, and the information technology work is being reshaped by the Cognitive Computing thrust.

Materials

The importance of materials technology to Defense systems is often underestimated. Many fundamental changes in warfighting capabilities have sprung from new or improved materials. The breadth of this impact is large, ranging from stealth technology to information technology.

Let me give you a powerful recent example. In the mid-1990s, DARPA worked on lowering the cost of a ceramic called boron carbide. At the time, it might have been easy for someone who was not a materials scientist to consider the work esoteric. Boron carbide was expensive, and the Services had little interest in it. However, DARPA's investments eventually led to inexpensive plates of boron carbide, helping to clear the way for the improved Interceptor body armor that is today able to protect our troops in Iraq and Afghanistan.

In keeping with this kind of impact, DARPA maintains a robust and evolving materials program to push new materials opportunities and discoveries that might change way the military operates.

DARPA's current work in materials includes the following areas:

- *Structural Materials and Components* – low-cost and ultra-lightweight, designed for structures and to accomplish multiple performance objectives in a single system;
- *Functional Materials* – advanced materials for non-structural applications such as electronics, photonics, magnetics, and sensors;
- *Smart Materials and Structures* – materials that can sense and respond to their environment; and
- *Power and Water* – materials for generating and storing electric power, for purifying air or water, and harvesting water from the environment.

DARPA's Titanium initiative (DTi) aims to dramatically change the way titanium is extracted from the ore, synthesized into existing and new, heretofore unobtainable alloys, and fabricated into primary product forms, e.g., specifically blast- and ballistic-resistant plate and sheet to meet Defense needs. The initial thrust of the program is the elimination of the 100-year-old Kroll process for extracting titanium, and replacing it with efficient, environmentally benign electrolytic or chemical processes. If successful, DTi will also result in substantially reduced cost, with a target of less than four dollars per pound in the billet or primary product form – and may be as low as only two times the cost of aluminum. Achieving DTi's goals could make it economically feasible to use titanium in place of steel in ships and armored vehicles, which would vastly improve their ability to resist attack and make armored vehicles more amenable to air-lift.

Microsystems

Microelectronics, photonics, and microelectromechanical systems (MEMS) are three key technologies for the U.S. military, enabling it to see farther, with greater clarity, and communicate information in a secure, reliable and timely manner.

The DoD relies upon unique aspects of these technologies to support advanced sensing, communication and other critical functions. As such, integration of DoD-specific components with commercial manufacturing and integration practices are key for many DoD systems.

DARPA led much of the early development that led to the microelectronics industry that we know today. Today, while the commercial microelectronics industry continues to aggressively push on productivity and scaling of two-dimensional integrated circuits, DARPA is developing the technical foundation for the next revolution we refer to as the three-dimensional integrated microsystem. This will enable a new class of components with optimized performance that sense and adapt to the environment across the full spectrum; that dynamically configure to the mission at hand; that influence and actuate elements of the environment with micro-scale precision; and that provide a communications channel that is nearly impossible to detect or jam, yet is perfectly clear.

The commercial microelectronics sector is rapidly approaching the ability to build electronic systems containing a trillion transistors in roughly a liter-volume and dissipating less than 100 watts or so. This is about the same complexity as the human brain, and it certainly gives us enormous potential for future electronic systems. However, the highest payoff opportunities for the Department lie in the convergence of several core technologies, namely, the ability to integrate these trillions of transistors with novel nanostructures, photonics, and MEMS. By leveraging the convergence of these technologies, designing new architectures, and integrating them in entirely new ways, we plan to open the field of the Integrated Microsystem.

To this end, one representative example of the technologies we are pursuing is the three-dimensional circuit architecture, which will be foundational to the Integrated Microsystem. We believe that by dividing a circuit into a number of blocks, implementing each block on a separate semiconductor layer, and then stacking the layers on top of one another, we will increase performance, reduce overall system size, and create entirely new options for device architecture and materials integration. Instead of thinking only in terms of scaling two-dimensional devices to smaller sizes, we will change the paradigm to one of volumetric integration.

Moreover, today's state-of-the-art semiconductor processes give us the ability to build structures with a degree of edge smoothness that was previously unattainable. This will make it possible to build optical structures, including wave guides, alongside transistors and MEMS on a single substrate, and will result in high performance nanophotonics and electronics integrated on a single chip. Such chips will also be scalable into the third dimension, as we stack them with other devices into highly Integrated Microsystems.

Such capabilities could enable autonomous and interactive systems that can reason, sense, communicate, and actuate. Such systems will be able to operate unattended for years at a time, and they will give the DoD an overwhelming capability and advantage in response to surprise or emerging threats.

These Integrated Microsystems might also enable small, and effective robotic systems that work autonomously in concert, to decisively engage and defeat a wide variety of enemy forces across the entire spectrum of conflict.

Information Technology

DARPA's information technology efforts build on traditional and revolutionary computing environments. Our programs strive to provide such things as improved device/system control, autonomous vehicle navigation, more robust and secure software systems, human-robot and robot-robot collaboration, and enhanced human cognition.

While DARPA's Cognitive Computing thrust is shaping DARPA's core technology foundation work in information technology, we are pursuing development in several other critical areas:

The High Productivity Computing Systems program focuses on the productivity or value of a system, instead of its raw, theoretical computing speed, in order to improve by a factor of 10 to 40 the efficacy of high-performance computers for national security applications. This program will maintain information superiority in areas such as weather and ocean forecasting, cryptanalysis, and computing the dispersal of airborne contaminants.

The performance of DARPA language translation technology on Arabic news feeds has advanced significantly – from essentially garbled output, yielding only the main topic of an article, to nearly edit-worthy text, often understandable down to the level of individual sentences. Combining this new translation technology with improved speech-to-text technology makes it possible to construct end-to-end integrated systems to monitor Arabic satellite news channels and websites automatically and continuously. DARPA is improving these key technologies, so that decision-makers can receive a broad range of critical information quickly.

DARPA's Quick Reaction Programs

Many of the systems used today in Afghanistan and Iraq benefited from DARPA investments made many years ago. But there are a number of items in use that might be described as "direct from DARPA." Let me mention a few:

- The Phraselator is a hand-held device that translates spoken English phrases into prerecorded phrases in a foreign language. It has been used to communicate with injured Iraqis and prisoners of war, at checkpoints, and for peacekeeping.

- The water pen is a compact device that sterilizes water with an oxidant solution created from salt, water and an electric current. Thousands of these devices are on their way to our troops in Iraq.

- Our Arabic language translation programs are being used to produce an Iraqi "Early Bird"-style clipping service in English from Arabic sources. This has saved Iraqi lives – our medical forces were able to learn immediately where wounded civilians were located because they were able to read local newspapers and transcripts of radio broadcasts.

- Our SOFTools mission planning software was used by Special Forces to plan the rescue of PFC Jessica Lynch.

- Software from our Command Post of the Future program is being used by the command post of the Army's First Cavalry Division to distribute itself across space, instead of being in one spot.

We want to keep these coming. The following is just a sample of what we are doing:

One of the hardest things about sniper attacks on convoys is knowing you are being shot at – it is hard to hear over the road noise Over the last few months, DARPA funded development of an acoustically based, vehicle-mounted sniper detection system to help our convoys detect sniper fire and determine the direction it is coming from. Troops have tested and trained with these systems, and 50 are on their way to Iraq. If they work well, we're prepared to buy almost 1,000 more.

We have a program that is testing the use of Kevlar air-bags to thwart rocket-propelled grenade attacks. The idea is to detect the incoming rocket-propelled grenade and then deploy an airbag to smother the round so it doesn't go off and deflect it slightly. Because rocket-propelled grenades use directional shaped charges, deflecting it should greatly reduce the damage, even if the round still goes off.

We are also working on various ways to detect improvised explosive devices. One of these involves a technique for detecting, identifying, and locating radio frequency-controlled improvised explosive devices in the considerable background clutter typical of cities.

To improve communications among our warfighters, we are working on using Aerostats to connect line of sight systems like SINCGARS (Single Channel Ground and Airborne Radio System) and EPLRS (Enhanced Position Location Reporting System), and on an inflatable communications tower in a box.

I hope my remarks today have given you a sense of our programs, as well as a sense of our vision and ambitions, of which I am equally proud. Thank you for this opportunity to appear today. I would be pleased to answer any questions you have.

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RECORD VERSION

STATEMENT BY

DR. THOMAS H. KILLION

DEPUTY ASSISTANT SECRETARY OF THE ARMY FOR

RESEARCH AND TECHNOLOGY AND

CHIEF SCIENTIST

BEFORE THE

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND

CAPABILITIES

COMMITTEE ON ARMED SERVICES

UNITED STATES HOUSE OF REPRESENTATIVES

2ND SESSION, 108TH CONGRESS

ON THE DEPARTMENT OF DEFENSE

SCIENCE AND TECHNOLOGY POLICY AND PROGRAMS

MARCH 25, 2004

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UNITED STATES HOUSE OF REPRESENTATIVES

UNCLASSIFIED

STATEMENT BY
DR. THOMAS H. KILLION
DEPUTY ASSISTANT SECRETARY OF THE ARMY
(RESEARCH AND TECHNOLOGY)
ON ARMY SCIENCE AND TECHNOLOGY PROGRAM
MARCH 25, 2004

INTRODUCTION

Mr. Chairman and Members of the Subcommittee thank you for the opportunity to describe the Fiscal Year 2005 Army Science and Technology (S&T) Program and the significant role S&T is playing in support of the warfighter in our Current Force and in achieving the Army's Transformation to our Future Force Capabilities.

We want to thank the Members of this Committee for your important role in supporting our Soldiers who are now at war and for your support of today's S&T investments that will sustain the preeminence of our future Soldiers. Your continued support is vital to our success.

ARMY SCIENCE AND TECHNOLOGY

We are a Nation at War. Challenged to maintain the technological and tactical advantage over our enemies by developing and exploiting both lethal, and when possible, non-lethal means. This creates a serious challenge for the Army. Army Science and Technology (S&T) is charged to provide America's Army with sustained overmatch in land combat. To do so, the Army S&T program retains a dynamic portfolio of technology investments that is responsive to the warfighters' needs of today and the future. The Army S&T mission is to conceptualize and develop future leap-ahead technologies that are necessary to maintain a superior land combat capability unmatched anywhere in the world while exploiting opportunities to accelerate the transition of proven innovative technologies to enhance the capabilities of the Current Force. The Army's S&T program is well balanced to provide high payoff needs of the Future Force while seeking rapid transitions for critical capabilities into the Current Force.

The Army continues in its commitment to transform into a lighter more lethal force, however, we are an Army at War and are continually challenged to achieve this transformation as quickly and as efficiently as possible. As General Schoomaker so eloquently states, transformation is an on-going process that we must work at each and every day. The S&T investments in the FY05 President's Budget pursue technologies that can be matured and rapidly transitioned to system development and procurement to enable Future Force capabilities as soon as possible. We also fund an agile basic research program focused on enduring Army needs as well as opportunities to further transform the Army.

We are not an Army alone; we are an integral member of the Joint Warfighting Team. The S&T program is focused on developing technology relevant to the needs of the Army and the Joint Forces. It remains synchronized with operational concepts development and acquisition programs to ensure rapid transition into the field. The Army S&T program continues to exploit technology developments from the other Services, Defense Agencies and commercial industry as well as international communities to assure that our Soldiers get the very best technology as soon as possible. The Future Force Army will provide the Joint Force Commander with a versatile, full spectrum decisive land combat power while requiring significantly reduced logistics support.

S & T CONTRIBUTIONS TO THE GLOBAL WAR ON TERRORISM

Army S&T has supported the development of technology that has produced several benefits for the Soldier in Iraq and Afghanistan. Perhaps the most important contribution that the S&T community continues to make is sending in-house scientists and engineers with the expertise and experience in critical technologies into the theater to see the real-life conditions, assess the problems, and develop rapidly deployable solutions for the warfighter. This community is committed to getting effective and usable technology into the hands of the warfighter --saving lives and enabling successful missions.

Sustained S&T investments over the past decade have enabled both the materiel technologies and the development of engineering expertise needed to quickly adapt and mature relevant solutions in support of current operations. Key examples of technology at work include an expedient solution to provide the High Mobility Multipurpose Wheeled Vehicle (HMMWV) to with the survivability to protect crews from Rocket Propelled Grenades (RPGs); further, additional armor was installed on the M1A1 rear grill door armor and the Stryker "bar armor;" which proved very important in today's urban operational environment. In Afghanistan, Army technologists deployed with portable backpack robots (pacbots) to assist Soldiers in cave and building clearing operations—reducing their vulnerability to enemy fires. New technology concepts were rapidly matured from ideas to capabilities to defeat an adaptive enemy: the omni-directional under vehicle inspection systems (ODIS) to detect improvised explosive devices (IEDs) and contraband; and an electronic countermeasure (ECM) system to jam electronic detonators being used by the enemy to set off IEDs.

I would also like to highlight a few contributions that often aren't reported but are clearly contributing to our continued success and play an important role in getting the job done. One example is the Chitosin bandage. It is an FDA-approved bandage designed by the Medical Research and Materiel Command to stop severe arterial bleeding within 2-4 minutes of application. This bandage's adhesive nature and enhanced clotting capability provide wound pressure and bleeding control to external hemorrhages. This bandage has been deployed to both SOF and conventional forces in theater and has been utilized successfully on a variety of injuries ranging from gunshot wounds to landmine injuries. Bottom-line… it saves lives.

Another example is the Forward Area Language Converter (FALCon), an Optical Character Recognition and machine translation system on a portable computer for foreign languages in theater. It was designed and developed by the Army Research Laboratory and provided to the Intelligence Community as a quick and reliable way to translate and analyze captured documents. FALCon can translate up to 47 languages including Arabic and Asian languages and is being used in both Iraq and South West Asia.

Finally, the Army deployed a prototype directed energy system to Afghanistan consisting of a commercial kilowatt class laser mounted on a HMMWV developed by the Space and Missile Defense Command. This system was successfully used in neutralizing surface mines and Unexploded Ordnance.

FUTURE COMBAT SYSTEMS (FCS)

Supporting FCS remains the highest priority for Army S&T. We have about 1/3 of our budget ($600M) invested in technologies that will provide our ground combat forces of this decade and the next with the dominant, full-spectrum combat power they will need to carry out their missions swiftly, efficiently, decisively and as safely as possible, no matter where they are asked to fight. FCS will be a multi-functional, multi-mission, reconfigurable system of systems designed to maximize Joint Interoperability, strategic and tactical transportability, and commonality of mission roles, including direct and indirect fire, reconnaissance, troop transport, countermobility, non-lethal effects and secure, reliable communications. In May 2003 the FCS Program passed Acquisition Milestone B, transitioning from S&T into System Development and Demonstration. The Project Manager for FCS continues to use the Boeing-led Lead Systems Integrator team to identify and integrate technologies from the Army, DARPA, other Service and industry programs to develop an FCS that will satisfy the capabilities described in the approved Operational Requirements Document.

FCS has adopted an Evolutionary Acquisition Strategy, which will allow the Army to increase the capabilities of the system of systems over time through spiral and incremental development processes. The initial instantiation of FCS (Increment 1) will be designed to provide certain "threshold" capabilities. The subsequent versions will deliver increased functionality to achieve "objective" capabilities as quickly as possible. Army S&T continues to play an important role in the FCS program by providing specific critical technology solutions for Increment 1. As part of the Milestone B decision, the PM FCS identified 31 Critical Technology (CT) areas that needed to be addressed. The technology solutions to address most of these areas come from the Army S&T

community in collaboration with DARPA. Eighteen S&T programs that were not quite as mature as desired by the May 2003 decision to enter SDD were identified in the PM FCS risk mitigation plans as being essential for Increment 1. Army S&T is committed to the continued maturation and demonstration of these technologies for delivery to the LSI prior to the FCS Preliminary Design Review in 2005. Some examples are: 120mm Line of Sight/Beyond Line of Sight Cannon, Mid-Range Munition, Robotic Follower and Semi-Autonomous Robotics for the Soldier "Mule", Active Protection against Kinetic Energy weapons, and Tactical Wireless Network Assurance algorithms.

We continue to mature and demonstrate these critical enabling technologies, providing the promised products on schedule for integration into FCS. Instead of "throwing technologies over the transom" to the PM for extensive additional development, we are entering into Technology Transition Agreements (TTAs) with the PM and LSI to ensure that S&T will deliver these products within the timeframe they need for integration into the system of systems. I believe that the implementation of the TTA approach will be a very valuable by-product of the FCS experience - a management tool that will help us bridge the gap that often exists between the end of an S&T program and the actual transition of the technology to an Acquisition program.

In addition to the efforts supporting Increment 1, S&T now has moved our main emphasis to developing capability-enhancing technologies for the Increment 1 Spirals and for Increment 2. Dr Tether and I have agreed to continue the Army/DARPA FCS Partnership for FY 2004 through 2007. We have identified a set of focus areas that represent some of the greatest challenges for the FCS and Future Ground Combat, namely: Networked Battle Command On The Move, Autonomy With Intent, Find the Enemy, and Affordable Combat ID. We have agreed to co-fund about 15 high risk-high payoff programs at DARPA to find technology solutions that, when spiraled into FCS, will provide the next leap ahead in capabilities.

FUTURE FORCE WARRIOR

Another major S&T investment is the Future Force Warrior (FFW). FFW will provide capabilities to the individual soldier that are achievable only at the platform-level today. Through networked connectivity to the FCS-equipped maneuver Unit of Action (UoA), FFW will enable revolutionary lethality, mobility, survivability, and sustainability for the individual soldier while reducing logistics demands. By the end of 2007, the FFW program will demonstrate increased individual soldier lethality and survivability through netted communications and fires while reducing the soldier's physical, fighting load from over 90 lbs to less than 50 lbs. The program develops a lightweight, low-observable, enhanced-armor protective fighting ensemble that includes lightweight, high-efficiency power sources; embedded physiological monitoring and limited medical treatments; embedded training; and networked sensors to enable unparalleled situational understanding.

BASIC RESEARCH

The Army's basic research program produces new knowledge to fuel revolutionary advances and leap-ahead technology that enable Army Transformation. The program invests in world-class expertise (government, academic and industry) and state-of-the-art equipment. It balances its investment between in-house Army specific research and leveraging external scientific research that can be used for Military applications. For example, few people would have anticipated that the basic research investment in atomic clocks in the late 50s would have resulted in the GPS that is so prevalent today.

Army In-house basic research focuses on military-unique problems, providing the underlying understanding that will enable technology development for the Current Force and Future Force technologies such as novel penetrators, lightweight durable armor, and energetic materials. In-house exploration research helps maintain "smart buyer" capabilities essential to the Army; utilizes Army unique facilities; and supports researchers in areas critical to the Army

The Army maintains an extramural basic research program that is balanced between its two major components:(1) the single investigator program that invests in the brightest minds at our leading universities and is a key source of next-generation of scientists and engineers with an understanding of military problems; and (2) larger scale partnerships with universities and industry to take advantage of commercial investments and the cutting edge research at outstanding universities in areas critical to the Future Force. The external basic research program gives leverage to the power of academia and industry; focuses world-class research on Army challenges; allows flexibility to capture new discoveries; and, complements internal efforts. The Army continues to exploit the opportunities created by these organizations to accelerate development of Transformational capabilities to a lighter, smarter, faster force.

The Institute for Creative Technologies (ICT) at the University of Southern CA continues to be an excellent example of how these Centers attack Army problems with new and different views. ICT leverages academic and Hollywood expertise to perform fundamental research in simulation environments and virtual human depiction for training, mission planning and rehearsal. It has worked with the Training and Doctrine Command's (TRADOC), Infantry School at Fort Benning to develop cognitive leadership training aids that leverage both Microsoft's X-Box game console (Full Spectrum Warrior) and "gamer" PC's (Full Spectrum Commander). In fact, Full Spectrum Commander is currently being adapted for Afghan National Army training in Operation Enduring Freedom.

The Institute for Soldier Nanotechnologies (ISN) at the Massachusetts Institute of Technology focuses and adapts nanotechnology research to significantly enhance soldier survivability. Investment areas are nanofibers for lighter materials, active/reactive ballistic protection (to solve the energy dissipation problem), microclimate conditioning, signature management, biomonitoring/ triage and active control components.

Last month we opened the Institute for Collaborative Biotechnologies (ICB) at the University of California, Santa Barbara. The ICB integrates biosciences with the physical and engineering sciences to provide an understanding of the biological construction of novel materials such as biologically-derived, functional electronic, magnetic and optical materials; integrated multi-modality sensing; biologically-derived network concepts; and, sense and respond actuation capabilities. This will influence the development of technology that improves military capabilities in the areas of precision strike, signature management, network design and implementation and "identification of friend or foe."

Collaborative Technology Alliances are Industry-led partnerships between Industry, major universities, HBCU/MI, and government. The strategy takes advantage of the large industry investments in areas of high importance to the Army such as communications and networks; robotics; advanced sensors and decisions architectures; and power and energy. This collaboration combines the practicality of industry with the creative research capabilities of universities and the operational knowledge and warfighter expertise of Army laboratories to leverage state of the art technology for the soldier.

Centers of Excellence support the advancement of technologies directly related to the enduring needs of the Army by funding universities where state-of-the-art research programs are coupled with broad-based graduate education programs to increase the supply of scientists and engineers in the areas of interest. This strategy focuses critical mass of effort on enduring challenges.

MANUFACTURING TECHNOLOGY (MANTECH)

The Army ManTech Program is designed to improve readiness and reduce total ownership cost of Army systems through the implementation of new and enhanced

manufacturing technologies. In 2002, the Army focused its MANTECH efforts to address high priority projects that will enable affordable production and sustainment of the Future Combat Systems (FCS) and Future Force in four major investment areas: Armor; Electronics/Power Systems; Munitions; and Sensors. The Army ManTech Program places a strong emphasis on transitioning technology, directly involving the technology developers, acquisition program managers and industry.

The Army's newest Center of Excellence, the Flexible Display Center, was established on 10 February at Arizona State University at Tempe (ASU). ASU will partner with industry, other universities, and the government to advance flexible display technology and manufacturing. The Army's goal is to have rugged, low-power flexible displays provide enhanced information and situational awareness for the Soldier and vehicle platforms. The FDC will provide the innovative research and development for materials, devices, and manufacturing processes to solve critical challenges in the performance and fabrication of flexible displays. The pay-off to the Army is a Transformational capability for a lighter, smarter, faster Future Force.

A good example of the return on investment that the Army ManTech program has achieved is the Enhanced Manufacturing Processes for Body Armor Materials project that ended in May 2001. This effort helped reduce the cost of the composite plates that go into the Interceptor Body Armor vest from $850/plate to $500/plate. Through December 2003, 500,000 plates have been produced for the Army and the Marine Corps. For a total shared investment in the ManTech program of $1.5M, we have realized a total of $175M in cost avoidance. With the Army's plan to field Interceptor Body Armor to all of its deployed forces, we expect this cost savings to significantly multiply.

CONCLUSION

The Army must maintain a diverse S&T portfolio to be responsive to current and future warfighter needs. The S&T community seeks technological solutions that can be demonstrated in the near-term, investigates the feasibility of new concepts for the

midterm, and explores the imaginable for the uncertain, far-term future. In closing I would like to thank you, Mr. Chairman, for the opportunity to testify before the Subcommittee. I would be happy to answer any questions you or the Members of the Subcommittee may have.

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HOUSE ARMED SERVICES COMMITTEE
TERRORISM, UNCONVENTIONAL THREATS
AND CAPABILITIES SUBCOMMITTEE

STATEMENT OF

REAR ADMIRAL JAY M. COHEN, UNITED STATES NAVY

CHIEF OF NAVAL RESEARCH

BEFORE THE

TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FISCAL YEAR 2005 SCIENCE & TECHNOLOGY POLICY & PROGRAMS

MARCH 25, 2004

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HOUSE ARMED SERVICES COMMITTEE
TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. Chairman, distinguished members of the Subcommittee, thank you for this opportunity to appear before you to discuss the Department of the Navy's fiscal year (FY) 2005 naval science and technology (S&T) budget request.

The last year has demonstrated how new technology and new operations have transformed the nature of the battlefield and the speed of operations. I want to highlight some of the contributions from the naval science and technology portfolio that have delivered new capabilities to our Fleet and Force. These are examples of how the Congress' sustained and stable investment in science and technology in the past delivers the technological superiority for our Sailors and Marines today.

Let me tell you about some of the science and technology success stories from Operation Iraqi Freedom. You will remember that I came before this subcommittee a few years ago and brought a prototype for demonstration of the Dragon Eye, a small unmanned aerial vehicle (UAV), for small unit tactical reconnaissance. The Dragon Eye is small, light, easy to transport, and easy to fly. This UAV has transitioned into the Marine Corps Force and will accompany the First Marine Expeditionary Force (I MEF) when it deploys to Iraq later this year.

We have long supported the development of unmanned underwater vehicles. The Remote Environmental Monitoring Unit or REMUS is a low-cost autonomous underwater vehicle. Originally designed to conduct coastal surveys in support of science, it was adapted for military use with support from the Office of Naval Research and the U.S. Special Operations Command. Capable of performing rapid environmental surveys, REMUS also functions as an underwater mine reconnaissance device for the Navy's Mine Countermeasure program. A half dozen of the REMUS autonomous underwater vehicles went with the Navy Special Clearance team to the Arabian Gulf to help clear the ports of Umm Qasr and Az Zubayr. Equipped with side scan sonar, REMUS was used to systematically survey 2.5 million square meters of waterways. This was the first time that an unmanned underwater vehicle was used in conjunction with other mine countermeasure units in a wartime situation. The team had the first REMUS in the water within several hours of arriving in Umm Qasr.

Another UAV used in Operation Iraqi Freedom is the Silver Fox. Built as a small tactical UAV, Silver Fox uses off-the-shelf avionics and can fly autonomously using differential Global

Positioning System (GPS). Weighing only 22 pounds, it can be launched by hand or catapult from various platforms. Once airborne, Silver Fox uses an infra-red and high-resolution color zoom camera to relay reconnaissance information instantaneously to a remote laptop computer. Powered by a 0.91 cubic inch engine, this fixed-winged aircraft can reach speeds close to 65 miles per hour and operate at an altitude of 1,000 feet with a range of up to 150 miles. We are working to increase the flight endurance beyond the current 10 hours. We are using the 4 pound payload capacity for small state-of-the-art detection systems. Silver Fox's 5-foot fuselage, detachable wings, and tail fins fit into a super-sized golf bag making storage and transportation simple and efficient. Unlike other UAV systems, which require a skilled radio-control operator or pilot, Silver Fox is easy to fly and allows the operator to program routes into a laptop computer

Those are some of our highlights for the near-term – "Today's Navy and Marine Corps". Naval science and technology is a sustained journey from discovery to deployment in which innovation (invention) and experimentation (validation) transform the operating forces. This is a continuous cycle, so I would like to discuss the "Next Navy and Marine Corps" (roughly the forces that will emerge over the next five to fifteen years), and finally the "Navy and Marine Corps After Next"—which we will see in fifteen to thirty years.

A great deal of our transformational effort is lodged in the Future Naval Capabilities (FNC). Science and technology enable Navy transformation by achieving the FNCs' goals. The key to successful transformation is the strong business partnership among scientists, industry, requirements, acquisition, and warfighters.

We have focused a major portion of our S&T portfolio on FNC for the "Next Navy and Marine Corps." Approximately two-thirds of our 6.3 (Advanced Technology Development) funds and about 40% of our 6.2 (Exploratory Development) funds are invested in the FNCs. The FNC process delivers maturing technology to acquisition program managers for timely incorporation into platforms, weapons, sensors, and process improvements. Each of the current 12 FNC focus areas is planned and reviewed by an integrated team with representation from the Office of Naval Research, a Program Executive Office (PEO), the Navy and Marine Corps requirements community, and the Fleet/Force user community. This gives us constant validation of the relevance of the technologies, and strong buy-in and commitment to transition plans. We

have recently strengthened alignment of the FNC process with the Naval capabilities development process, which establishes our program requirements and priorities in Sea Strike, Sea Shield, Sea Basing and FORCEnet.

The current FNCs, in no priority order, are:

- **Advanced Capability Electric Systems** – The future of naval warfare is electric. Warships will have revolutionary power plants that permit new hull forms and propulsors, reduce manning, streamline logistics, power advanced sensors, and enable future high energy and speed-of-light weapons. We have already successfully transitioned the Aircraft Electrical Servicing Station, a solid state, re-programmable, reliable, high quality deck edge power source for aircraft servicing, and the Reconnaissance, Surveillance and Targeting Vehicle, which demonstrates key hybrid electric components such as Li Ion Battery Pack, power electronics, and in-hub wheel motors in an integrated system demo. In fiscal year 2005 we will transition work on our Ships Service Fuel Cell to the DD(X) program. Fuel cell technology has the potential to significantly reduce fuel consumption, and can also provide distributed power generation, improving the ship's "fight through" ability. This FNC is aligned most closely with ***Sea Strike, Sea Shield,*** and ***Sea Basing***.

- **Autonomous Operations** – This program is pursuing a dramatic increase in the performance and affordability of Naval air, surface, ground, and underwater autonomous vehicles—unmanned systems able to operate with a minimum of human intervention and oversight. The Autonomous Operations FNC gives us a great potential to operate effectively in what would otherwise be denied areas. It contributes to ***Sea Shield*** and ***Sea Strike***. In fiscal year 2005, for example, we will transition the Modular Mission Payload Architecture to the Fire Scout Vertical Tactical UAV. The prototype system is being used to control the ISR payload on the Spiral 1 Spartan USV, which is currently deployed on the USS Gettysburg in the Middle East.

- **Fleet/Force Protection** – We have very capable ships, aircraft, and ground combat vehicles. It's our business to ensure that they don't fall to the sorts of asymmetric threats our enemies pose. This FNC, aligned with ***Sea Shield***, is working to develop effective organic means of protection: weapons, sensors, countermeasures, stealth and damage control. It has already

transitioned the initial phase of the ES Detection of LPI Periscope Detection Radars project to Office of Naval Intelligence as part of their Cluster Pennant Program. In addition, this S&T program is transitioning as an upgrade to NAVSEA's AN/BLQ-10 Submarine ES System.

- **Knowledge Superiority and Assurance** – Information technology is as crucial to naval superiority as it is to any other aspect of contemporary life. This program is developing our ability to distribute integrated information in a dynamic network with high connectivity and interoperability. It will ensure knowledge superiority, common situational understanding, and increased speed of command. This FNC is a key enabler of ***FORCEnet***. It recently provided a prototype Image Processing and Exploitation Architecture tool to the I MEF for deployment on UAVs in Iraq and Afghanistan. This tool provides a geo-referenced composite picture of imagery that builds over time as UAV sensors conduct searches of areas of interest. The picture provides a substantial enhancement to standard imaging techniques that only provide a view of what the sensor sees at any particular point in time. The Knowledge Superiority Assurance FNC has also provided tools that significantly improve our ability to process signals intelligence and weather information in-theater. In fiscal year 2005, this FNC plans several transitions to significantly improve time-sensitive decision making, apertures, networking, interoperability, and the next generation common picture.

- **Littoral Antisubmarine Warfare** – This program is part of our shift in emphasis to littoral, expeditionary operations. The antisubmarine warfare challenge in coastal waters is a tough one so, we are focusing scientific efforts on enhancing our ability to detect, track, classify, and engage enemy submarines by using a layered tactical ASW approach. We do this by first countering enemy submarines near shore, followed by addressing threat submarines prior to their torpedo launch, and then countering any threat torpedoes after launch. Each layer by itself will effectively address its individual objective; and when the layers are viewed in their entirety, it offers an effective "system-of-systems" approach that we believe will adequately address the ASW problem. A number of products have transitioned to acquisition systems including Sonar Automation Technology processing techniques that provide automated detection and classification operator alerts to submarines and surveillance

platforms, reducing operator workload and increasing performance capability. ***Sea Shield*** is benefiting from the products of this FNC.

- **Littoral Combat and Power Projection** - This FNC has two major thrusts: Expeditionary Logistics (aligned with ***Sea-Basing***) and Littoral Combat (essential to ***Sea Strike***). This FNC focuses on deploying uniquely capable combat and logistics systems necessary to deploy and sustain the Fleet and the Force without building up a large logistical infrastructure ashore. This year, the Expeditionary Logistics Program successfully tested a set of automated Logistics Command & Control/Decision Support Tools essential to the Marine Air Ground Task Force (MAGTF). They have set the stage for transition of a Ground Logistics Command and Control Combat Service Support "Toolkit". The Toolkit will provide proactive rapid request support for personnel, equipment, and services, logistics mission planning and execution support, after-action assessment tools, and situational awareness projection onto the Marine Corps common operating picture. Littoral Combat FNC plans a fiscal year 2005 transition of the EX-45 Stabilized Gun Mount which will use advanced software to sense and compensate for motion about train and elevation axes. The gun mount which additionally houses an Embedded Video Tracker is compatible with the MK-19 40mm, M2 .50 caliber and M240G 7.62 weapon systems. The stabilized, adaptive mount coupled with an auto-tracking feature will significantly enhance warfighting capability in both surface vessel and vehicular applications. Also planned for transition in fiscal year 2005, the Expeditionary Decision Support System (EDSS) software application is designed to support operations ranging from amphibious landings to combat operations ashore. Resident within the application are scheduling engines, computational models, performance algorithms, and the ability to collaboratively access common databases. EDSS's high degree of military utility has garnered substantial warfighter interest and as a result has deployed with Marine Expeditionary Units (MEU) and Naval Expeditionary Strike Groups (ESG) in support of Operations Enduring Freedom and Iraqi Freedom. The Direct Reporting Program Manager Expeditionary Fighting Vehicle (DRPM EFV) will transition the secure wireless local area network (LAN) and related technologies to enhance the information exchange between individual EFVs, between EFVs and dismounted troops, as well as between EFVs and the ships and operations centers with which they operate.

- **Missile Defense** – This program is focused on technology enabling and supporting lethal engagements of theater missiles, manned and unmanned aircraft at extended ranges in defense of naval forces and assets afloat and ashore. Products being worked will offer ways to expand the battlespace rapidly, identify contacts accurately, and engage threats effectively and efficiently. This year, as part of the Composite Combat Identification project, the Missile Defense FNC will transition advanced algorithms to correlate real-time track files with signals intelligence data and other information files resident in the EP-3E ARIES II surveillance aircraft. When this capability is operational, derived identification information will be provided to fleet tactical users in real-time. As part of the Reactive Materials Warhead project, test results and warhead design parameters of a first generation reactive materials warhead will be available with the goal of high lethality against cruise and ballistic missile targets. In September, there will be an important demonstration at the Combat Systems Engineering Design facility of our Distributed Weapons Coordination capability. These automated battle management algorithms will provide real time priority Threat Evaluation considering all air threats and all defended assets, at sea and ashore. Recommendations of Preferred Shooter will also be developed considering location, current weapons load and optimal end-game geometry for both ballistic missile defense and defense against "air breathing" threats. In early fiscal year 2005, we will complete development and testing of highly mobile X-band radar technology in the Affordable Ground Based Radar project as a risk reduction concept demonstration for the Marine Corps Multi-Role Radar System (MRRS). The Missile Defense FNC is a strong contributor to the Sea Shield and FORCEnet pillars of the Navy's Sea Power 21 operational concept.

- **Organic Mine Countermeasures** – Because they are cheap, and able to seed the battle space with a menace far out of proportion to their numbers, mines have been and will continue to be deployed against us by terrorists and their state sponsors. We're working to give our forces an organic—that is to say, an inherent—and stand-off ability to detect, characterize, and neutralize mines wherever they may be encountered. Closely aligned with ***Sea Shield***, this FNC has transitioned several important products. One of them, the REMUS autonomous underwater vehicle, in now in the hands of our operating forces in Iraq where it helped clear the rivers to speed supplies to troops. It was also pressed into service in the weeks immediately following 9/11 to help secure ports on both of our coasts. I might mention that

REMUS emerged from a basic oceanographic research program—another piece of evidence that overnight successes are long in preparation.

- **Time Critical Strike** – We are substantially reducing the amount of time it takes to hit critical mobile targets, like theater ballistic missiles launchers, command centers, and weapons of mass destruction. One of this FNC's products, the Affordable Weapon System, a loitering cruise-missile-like system that can carry a variety of payloads, is currently transitioning to the acquisition community for development this year. Time Critical Strike is aligned with ***Sea Strike***.

- **Total Ownership Cost** This FNC uses advanced design and manufacturing processes to significantly decrease the cost of buying, operating, and maintaining Navy systems while promoting increased system readiness. We are working to reduce total lifecycle costs during design and manufacturing as well as increase savings realized from reduced manning and better environmental compliance. Aligned primarily with ***Naval Enterprise***, this FNC has transitioned a number of programs to the user community. The Total Oil Monitoring System is designed for real-time, online applications and will transition to Navy surface ships to monitor critical machinery. The Rapid Cure Ship Tank Coatings Program has been demonstrated in 14 ship tanks and voids. Aircraft corrosion sensors, developed under the Corrosion and Corrosivity Monitoring System Program have been installed on an H-60 helicopter for flight testing. The Turbine Engine Technology Program delivered a thermal barrier coating with significantly reduced thermal conductivity that was selected for inclusion in the F135 (Joint Strike Fighter) engine. In fiscal year 2005, we will transition a Portable Wide Area Non Destructive Inspection Imager that maps surface corrosion and subsurface defects without removal of paint. Payoffs include faster, more reliable aircraft inspection, improved prognostics, longer aircraft life, lower repainting costs and improved safety.

The relatively mature technologies managed in FNCs do not spring up overnight. In many cases they are the result of long term investments in research and invention programs in 6.1 and early 6.2 funding categories. We focus our research and invention investments on areas where the Navy is the only significant U.S. sponsor (such as Ocean Acoustics and Underwater Weaponry), and on S&T Grand Challenges whose solution would provide significant advances

in Naval capability (such as Naval Materials by Design). A stable, long term discovery and invention program is essential to keep our pipeline full of enabling technologies and to attract the nation's best scientific talent to focus on Naval problems.

Finally I would like to talk about the "Navy and Marine Corps After Next"—the fleet and force we will see in fifteen to thirty years. We are continuing to support our Grand Challenges and the National Naval Responsibilities as well as our Innovative Naval Prototypes. The Naval Science and Technology Grand Challenges are large, difficult, challenges that, if met, could give us decisive capabilities fifteen to thirty years in the future. We encourage the nation's scientific community to achieve breakthroughs in difficult but achievable scientific challenges like Naval Battlespace Awareness, Advanced Electrical Power Sources for the Navy and Marine Corps, Naval Materials by Design, and Multifunctional Electronics for Intelligent Naval Sensors. The National Naval Responsibilities are fields in which the Department of the Navy is the only significant U.S. sponsor. These include fields like Naval Engineering, Ocean Acoustics, and Underwater Weaponry. If the Department of the Navy didn't invest in them, it is unlikely that anyone would. It is vital to keep such fields healthy, not only for the sake of our own capabilities, but to avoid technological surprise as well.

I am excited about what I call Innovative Naval Prototypes. These are the capabilities that promise to fundamentally change how we prepare for and fight wars. Examples include: the free electron laser, the electromagnetic railgun, hypersonic missiles, the x-craft, and superconducting electric drive motors. The Secretary of the Navy and the Chief of Naval Operations are committed to making the electric ship our ship of the future and we are providing the science and technology. We are well down the path to building the electric propulsion and weapons. The 36 megawatt motor effort is underway and we are using the lessons learned from ongoing testing of the 5 megawatt motor. The Free Electron Laser is progressing to its next demonstration at 10 kilowatt. In addition, we are working collaboratively with the other services, as directed by the Congress, on electromagnetic rail gun technology for the future.

Construction is underway on the high speed, experimental vessel called Littoral Surface Craft – Experimental, or "X-Craft." This high speed aluminum catamaran will test a variety of

technologies that will allow us to improve our capabilities in littoral, or near-shore, waters. The X-Craft will be used to evaluate the hydrodynamic performance, structural behavior, mission flexibility, and propulsion system efficiency of high speed vessels. X-Craft will eventually be fitted with an advanced lifting body component. The lifting body component is a streamlined underwater appendage that will dampen low-speed ship motions, increasing the operational envelope for helicopter and small craft operations. Liquid polymers will be used on the surface of the lifting body to evaluate drag reduction.

The X-Craft will be the first Navy purpose built ship to demonstrate mission flexibility. Mission flexibility will be demonstrated through interchangeable "mission modules" housed in the X-Craft's large Mission Bay in standard twenty-foot container boxes. The Mission Bay will be capable of housing twelve containers, permitting the vessel to be quickly reconfigured to support a variety of potential missions, including battle force protection, mine counter-measures, amphibious assault support and humanitarian support. A multi-purpose Stern Ramp will allow X-Craft to launch and recover manned and unmanned surface and sub-surface vehicles up to the size of an 11 m Rigid-Hull Inflatable Boat (RHIB). From its flight deck, X-Craft will be able to support 24-hour a day operations for up to two MH-60S helicopters.

In conclusion, the nation's return on investment is clear. Naval transformation depends on a long-term, stable and sustained investment in science and technology. We validate through a cycle of on-going experimentation and validation so we can transition new capability to the warfighter.

Thank you for the opportunity to testify.

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE HOUSE ARMED SERVICES COMMITTEE

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Fiscal Year 2005 Air Force Science and Technology

STATEMENT OF: Mr. James B. Engle
Deputy Assistant Secretary
(Science, Technology and Engineering)

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INTRODUCTION

Mr. Chairman, Members of the Subcommittee, and Staff, I very much appreciate the opportunity to provide testimony on the Fiscal Year 2005 Air Force Science and Technology (S&T) Program. The United States Air Force is transforming to a capabilities-focused Expeditionary Air and Space Force. We are doing this through the development of the Concept of Operations for each of the seven major tasks the Air Force must be capable of accomplishing to support our combatant commanders. Our goal is to make the warfighting effects and the capabilities we need to achieve them the drivers for everything we do. This is especially true in our S&T Program. We have taken the effects and capabilities required by the seven Concepts of Operations and mapped them to the Long-Term Challenges and Short-Term Objectives identified in the Congressionally-directed S&T Planning Review completed in February 2002. Not surprisingly, we have a high correlation between our S&T programs and the capabilities required by these Concepts of Operations. This is because the Air Force Research Laboratory (AFRL) closely links the technologies reflected in its S&T Plan to warfighter capability needs.

The United States Air Force is committed to an S&T Program that enables us to achieve our vision of becoming an integrated air and space force capable of rapid and decisive global engagement. By continuing our investment in transformational technologies that support a reduced cycle-time, spiral development acquisition process, the Air Force will retain its dominance of air and space in future conflicts, against both traditional and asymmetrical threats.

Innovation is a vital part of our heritage and is key to ensuring the Air Force will meet the challenges of tomorrow. Transforming our warfighting capabilities towards this end will involve continued innovations in how we train our forces and how we think about employing our forces to defend our nation, as well as continued advances in our technology. We must be prepared to

counter regional instabilities, the worldwide availability of advanced weapons, and other emerging and less predictable acts of terrorism against our nation and allies. We are developing transformational technologies that permit flexible forces to operate far from home, on short notice, and for extended time periods. However, we must also be able to afford transformational innovations once we develop them in order to re-capitalize the Air Force to fulfill our vision. To meet warfighting capability objectives, we invest in the most promising and affordable technologies in order to win decisively, protect our forces, and minimize collateral damage.

S&T BUDGET/SENIOR LEADERSHIP INVOLVEMENT

We continue to be faced with the reality of a fiscally-constrained, but operationally-demanding environment. The high operations tempo the Air Force has sustained in support of peacekeeping operations and conflicts, such as in Afghanistan and Iraq, has placed a great burden on our people and the supporting logistics.

In spite of these rigorous demands, the Air Force is working to increase S&T funding, while maintaining a balanced S&T portfolio. The Air Force Fiscal Year 2005 President's Budget (PB) request for S&T is $1.9 billion — this includes $1392.8 million in "core" S&T efforts, which represents an increase of over $80 million or almost five percent real growth compared to the PB requested amount for similar "core" S&T efforts in Fiscal Year 2004. The most significant change in the S&T PB request results from the integration of programs that were devolved last year from the Office of the Secretary of Defense to the Air Force S&T Program. This includes the University Research Initiative program and the High Energy Laser Joint Technology program.

The Air Force understands the concerns of Congress regarding the level of support for these devolved programs and continues to work hard to ensure these programs support the diverse multiple military objectives inherent in joint programs. Furthermore, the Office of the Secretary of Defense continues to provide policy guidance and oversight for these efforts.

In a separate action last year, the Seismic Research Program for detection of nuclear explosions was transferred back to the Air Force from the Defense Threat Reduction Agency (DTRA). We continue to work with the Office of the Secretary of Defense, the Air Force Technical Applications Center, and the Army to invest in a seismic research program that addresses operational nuclear explosion monitoring needs. Under the guidance of The Office of the Secretary of Defense-led intergovernmental Steering Committee, the Air Force is funding research to increase the understanding of seismic wave propagation at regional distances of less than 2,000 kilometers.

One area in which the Air Force has increased its investment is in space communications technology with initiation of the transformational communications technology development program. This program will identify, develop, and demonstrate the wideband technologies needed to build a space-based laser communications network that could provide higher data throughput to transform our military satellite communications infrastructure.

Warfighter and senior Air Force leadership involvement in the planning, programming, and prioritizing of Air Force S&T continues to be a priority. For example, the Secretary and Chief of Staff of the Air Force, along with the Air Force Service Acquisition Executive and the Air Force Materiel Command Commander, conduct a full portfolio review of the S&T Program similar to the former S&T Summits. In addition, the Integration Capabilities Review and Risk Assessment process involves several levels of senior Air Force leadership, including the Chief

and all the four stars, and further promotes a greater understanding within the Air Force of the S&T Program and its link to warfighting capabilities. The Capabilities Program Execution Review provides a forum in which the Commander of each Major Command is afforded a focused look at his portfolio and an opportunity to resolve issues at the system/program level and provide insight to the S&T Program. Finally, the Applied Technology Councils (ATCs), which are discussed in greater detail later in this statement, bring together acquisition product centers, logistics centers, major user commands, and laboratory personnel to review and discuss S&T efforts — ATCs foster top-level user involvement in the transition of technology from the laboratory to the system developer to the operational user.

TRANSFORMATION

The Air Force continues to transform from a Cold War to a post-Cold War Air and Space Force. As we do so, we must prepare for new forms of terrorism, attacks on our space assets, attacks on our information networks, cruise and ballistic missile attacks on our forces and territory, and attacks by adversaries armed with chemical, biological, radiological, nuclear, or high explosive (CBRNE) weapons. To address this post-Cold War reality, the Air Force has established a process of transformation by which it will achieve and maintain the "advantage through changes in operational concepts, organization, and/or technologies that significantly improve its warfighting capabilities or ability to meet the demands of a changing security environment." Critical to this transformation is the ability to mature and translate a vision into actual operational capabilities in order to prevail in conflict and avert technological surprise.

When examining the concept of combat transformation, it is important to note several fundamental points. First, transformation is not the result of a one-time improvement or change,

but rather a continuum of sustained and determined efforts. Second, meaningful transformation requires integrating expanding capabilities with those of the other Services and non-military elements of national power. Third, transformation is more than new "gee-whiz" technologies. It includes adapting existing capabilities and using them in new ways, changes to the organizational structure to increase effectiveness, and changes in doctrine and concepts of operations to include training and tactics that determine force deployments. Fourth, transformation should not be achieved at the expense of ongoing operations in support of the Department of Defense strategy of maintaining adequate readiness and infrastructure, conducting critical recapitalization, and attracting quality personnel. To achieve rational transformation there must be a careful balance between these requirements, which all compete for limited resources.

To institutionalize transformational changes, the Air Force will capitalize on three core competencies. One, developing airmen to ensure they receive the education, training, and professional development needed to provide a quality edge second to none. Two, integrating operations to enhance combat capabilities that are pivotal to maximizing the air and space environment. Three, the technology-to-warfighting vision of translating technology into operational capabilities. These three core competencies are the foundation of success and will ensure we remain dominant in air and space operations.

Transformation further translates into Air Force Operational Concepts --- more commonly known as Concepts of Operations or CONOPs. Air Force CONOPs provide the long-term roadmaps to get the right capabilities at the right time and place for the joint warfighter. Implementation of these CONOPs require new and sometimes revolutionary changes to existing CONOPs and organizations, and refocusing technology developments. The CONOPs form the

basis of the Air Force investment strategies for technology development, system acquisitions, and support decisions. The Air Expeditionary Task Force is an overarching CONOP that uses the capabilities provided by the following six supporting CONOPs:

- **Global Strike** provides the capability to maintain battlespace access for all required joint/coalition operations
- **Space and Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance** provides persistent space and air situational awareness and executable decision-making information to the Joint Forces Commander
- **Global Response** provides intelligence and strike systems to attack fleeting or emergent, high-value or high-risk targets by surgically applying power anywhere on the globe within hours
- **Homeland Security** leverages Air Force capabilities with joint and interagency efforts to prevent, protect, and respond to identified threats
- **Nuclear Response** provides the deterrent "umbrella" under which conventional forces operate and, if deterrence fails, avails a rapid scalable response
- **Global Mobility** provides the capability to enable rapid, timely, and effective projection, employment, and sustainment of power in support of global interests

The Air Force goals to achieve transformation include information superiority, air and space superiority, precision engagement, global attack, rapid global mobility, and agile combat support. The Air Force S&T Program has been planned and focused to support the Air Force CONOPs and goals. The Air Force Capabilities Review and Risk Assessment (CRRA) process supports the CONOPs by identifying and analyzing current and future capabilities, capability shortfalls, health risks, and opportunities. Part of the CRRA process is to provide information on

these identified technology gaps and shortfalls to the S&T Program planners to provide direction and focus to the S&T capability planning process. The CRRA process is transformational as it concentrates on desired battlespace effects vice specific air and space platforms.

WORKFORCE

The Air Force scientist and engineer (S&E) workforce is another area where senior Air Force leadership involvement plays a pivotal role. Both Secretary Roche and Gen Jumper are deeply involved in shaping our future S&E workforce. Air Force civilian and military S&Es are highly motivated and productive, but we need to be vigilant in continuing to recruit and retain the best and brightest individuals. The Air Force is unique in that approximately 20 percent of its laboratory S&E government workforce is active duty military. It is from this cadre that we draw the technical competence needed in our military Service leadership to operate an ever more technical force. In addition, this gives us a direct link to the warfighter, which in turn helps us to focus technology development on warfighting capability needs. Some of these military S&Es come directly from operational commands, while others will serve and support combatant commanders in operational commands later in their careers.

The Air Force is committed to shaping its S&E workforce with the vision to enhance excellence and relevance of S&T into the 21st Century and appreciates the support Congress has already provided. This challenge requires the Air Force to maintain a dominant edge in warfighting capabilities and also requires us to provide clear direction and growth for our S&E workforce. However, we, as do others, find it a significant challenge to recruit and retain S&Es. The Air Force has several initiatives, both civilian and military, that address recruitment and retention issues.

Civilian initiatives include the recruitment of college students with critical S&E skills via recruiting incentives, a robust marketing effort, and a co-op central funding program that hires college students while still in school. Central funding for recruiting bonus and retention allowances for journeyman level S&Es also promises to provide much needed assistance with civilian recruitment and retention.

On the military side, we're employing the Airman Education and Commissioning Program and the Technical Degree Sponsorship Program to recruit additional S&Es into the military workforce. We are in the process of examining the impact of bonus programs such as the Critical Skills Retention Bonus on retention and will assess future Air Force requirements for this and similar bonus programs.

The Air Force is committed to its S&Es and published a "Concept of Operations for Scientists and Engineers in the United States Air Force" last year. We also baselined the requirement for the Air Force S&E workforce and, upon analyzing this baseline requirement, found that while our military and civilian authorizations were about right, our actual demographics were seriously short in some key areas. We continue to shift our focus towards retaining the workforce we have and infusing it with the vitality of new S&Es to meet tomorrow's need. During the next seven years, we are investing nearly a third of a billion dollars to support the retention and reshaping of our technological workforce. As we replenish our S&E workforce, we are providing career guidance and mentoring that will enable us to meet our 21st Century challenge. Once the National Security Personnel System is implemented it could also produce positive results in shaping our S&E workforce. Again, we express our thanks to Congress for your continued support.

MAXIMIZING OUR S&T DOLLARS

We will continue to leverage technology to achieve new levels of combat effectiveness. Our strategy is to pursue integrated technology capabilities that support our warfighter's highest priority needs. In addition to transformational technologies, we must also pursue the fundamental enabling technologies that will improve tomorrow's Air Force. As technological superiority is increasingly a perishable commodity, we work hard to optimize our S&T funding, by not only "inventing the future" ourselves, but also by speeding the transition of new technologies to our warfighters.

One way of identifying technologies for rapid transition to the warfighter is through our Applied Technology Councils (ATCs) and the Advanced Technology Demonstrations (ATDs). The councils are composed of two- and three-star generals from AFRL, our logistic centers, our acquisition product centers, and our major user commands who formally prioritize proposed ATD programs. We hold an ATC meeting with each Major Command twice every year and have commissioned 34 ATDs that have transition funding. The ATC process is extremely important in linking the S&T Program to the system developers, the logisticians, and, finally, the operational user. This process facilitates technology transition to operational use and secures user commitment for resources to do systems design and development and fielding of the technology. Currently about fifty percent of our Advanced Technology Development (6.3) budget is committed to ATD programs.

Since deployed technology may remain in use for decades, the Air Force S&T Program not only focuses on enhancing performance, but also on sustaining our fielded warfighter capabilities. Emphasizing affordability from the very beginning through training of our management, and science and engineering staff, as well as through an in-depth review of

technology development efforts, increases our potential to reduce the costs of technology early in the system development process and throughout a product's life cycle.

We maintain an excellent balance of military, civilian, and contractor expertise, which allows us to be very selective about investing in high payoff technological opportunities. We constantly seek opportunities to integrate Air Force planning and leverage our S&T funds by cooperating with other Services, Agencies, the private sector, and international partners. For example, we rely on the Army as the lead Service for defensive chemical-biological technology development. The Air Force also has inter-Agency efforts, such as our program in aging aircraft, which is focused on detection and management of corrosion and fatigue in aging structures. It is closely coordinated with the civilian aging aircraft research programs at the National Aeronautics and Space Administration (NASA) and the Federal Aviation Administration (FAA). Our partnership with the industrial and university research base is very strong. In fact, we outsource over seventy percent of our S&T funding to universities and industry. Finally, the Air Force is involved in international cooperative technology development efforts for S&T, such as the non-destructive inspection, tactical missile propellants, and aircraft battle damage repair efforts conducted with the United Kingdom, Germany, and Italy, among others. Another example of international cooperation is the multi-domain network management program with Australia and Canada. This program is developing the technology concepts and tools for creating and managing secure computer networks with our coalition partners.

LEGACY PROGRAMS

Over the years, the best and most reliable way to judge whether you are investing in the "right" technologies is to look at legacy systems that are in development or operational use and see how the technologies you invested in previously have transitioned into these "products." An

excellent example is the F/A-22. A wealth of technologies that transitioned to the F/A-22 can be traced back to an investment of approximately $900 million in Air Force S&T over the years. These technologies include efforts such as low-observable materials, advanced two-directional thrust vectoring nozzles, new supercruise non-afterburning turbine engines, airframe design, mission integrated transparencies, solid state active transmit and receive radar, thermoplastic composite structures, and fly-by-wire integrated flight controls. In the space arena, examples of technologies that have transitioned into space "products" include radiation-hardened electronics to protect our satellites from the harmful effects of radiation; longer life, lighter weight lithium ion batteries; compact, more efficient solar cells for more effective processing of sunlight into electrical power; composite bus structures that are lighter weight and stronger; hall thrusters for orbit change and orbit maintenance; and enhanced antenna designs that provide for more efficient communications. In addition, a number of information-related technologies have transitioned into operational use including the highly effective information data wall that is currently being used in Afghanistan and Korea, multi-layer communications security being used by several government agencies, and software defined reprogrammable radios for secure communications and adaptable for coalition operations.

Some technologies, such as those being implemented as spiral upgrades to the Battlefield Air Operations (BAO) Kit that is used by Air Force ground controllers who call in air strikes, were rapidly transitioned into use during Operation Iraqi Freedom. The BAO Kit is one of the Secretary of the Air Force's top priorities and continues being developed in several different acquisition spirals as the technology matures. The technology transitioned from S&T into developmental and operational products is extensive and provides the confidence that S&T funding is being wisely invested. The panoramic night vision goggles are another prime

example and provide operators a significantly wider field of view than the "soda straw" view of earlier goggles. Technology transition into operational use is the ultimate metric for assessing the value of our S&T investment.

WORLD CLASS RESEARCH

The quality of our program is assessed by the Air Force Scientific Advisory Board (SAB) through yearly reviews. The SAB conducts an in-depth review of half of the S&T Program each year, covering the entire program over a two-year period. Twelve technical areas have been identified as world-class research during the last cycle of reviews — let me highlight a few of these areas that were identified as world-class.

The Directed Energy Directorate's Starfire Optical Range at Kirtland Air Force Base, New Mexico, is leading the adaptive optics research for use in large ground-based telescopes to image satellites and propagate laser beams through the atmosphere. This will enable high-quality, ground-based observations of space objects and propagation of laser beams through a turbulent atmosphere. Satellite images using this technology can provide real-time status information that cannot be obtained in any other manner.

Our Propulsion Directorate's Hypersonics Technology (HyTech) work at Wright-Patterson Air Force Base, Ohio, is acknowledged by the SAB as world class and is the cornerstone of future hypersonic capabilities, such as destroying time-critical targets and responsive access to space. Our HyTech program has continued to advance the state-of-the-art in scramjet engines and completed the first ever ground test demonstration of a scramjet producing positive net thrust begun in 2001. In February 2003, HyTech tested a flight weight scramjet Ground Demonstration Engine operating at Mach 4.5. While the 2001 Performance

Test Engine used copper heat-sink hardware and weighted 1,500 pounds, the 2003 Ground Demonstration Engine used JP-7 fuel to cool the scramjet engine walls and weighed less than 150 pounds. This marked another first for the HyTech program—demonstrating the structural durability of a hydrocarbon fueled, actively cooled scramjet. Testing at Mach 6.5 has been completed. United States industry developed this particular engine in collaboration with Air Force scientists and engineers.

Another SAB-rated world-class research program is the Warfighter Skill Development and Training efforts worked by our Human Effectiveness Directorate at Brooks City-Base, Texas. Specific research areas include Integrated Panoramic Night Vision Goggle (PNVG) and Distributed Mission Training. The Integrated PNVG will improve situational awareness and terrain avoidance at night through its wider field of vision and improved resolution. It will also provide protection from laser target designators, laser rangers, and laser threats through compatibility with existing laser eye protection technologies. Distributed mission training will provide an integrated set of training, simulation, and mission rehearsal technologies that will improve warfighter capabilities and mission readiness by enhancing operator and team performance skills. Technologies will increase operational readiness by providing more effective methods and approaches to train and assess personnel. These technologies will contribute to a more highly trained and flexible cadre of personnel at a reduced cost.

Working closely with operational users and the Human Effectiveness Directorate at Brooks City-Base, AFRL researchers in the Materials and Manufacturing Directorate at Wright-Patterson Air Force Base, Ohio, continue to develop and transition new laser eye protection technologies that provide aircrews with improved eye protection. The world-class multi-disciplinary approach anticipates future threats and needs, and assures that next-generation

hardening technologies will address the agile laser threat. The Laser Eye Protection program is enabling aircrews to conduct day and night air operations without visual jamming or personal injury. The Materials and Manufacturing Directorate also conducts world-class research to improve the affordability, durability, and performance of advanced aerospace metals by integrating modeling and simulation into all aspects of the program. The potential cost savings when qualifying metallic materials for insertion into Air Force weapon systems are significant. Revolutionary work on thermomechanical process modeling and probabilistic micromechanical modeling of failure and durability will change the way materials are developed and implemented in air and space applications.

Our research in Electro-Optical Warfare at Wright-Patterson Air Force Base, Ohio, will allow future laser-based sensor systems to penetrate moderate cloud cover, obscurants, and camouflage. This will provide improved target detection and identification for our weapon systems. "See and Avoid" sensors will ease restrictions on unmanned air vehicle operations in civilian airspace and allow autonomous operation in conjunction with manned aircraft. These technologies may also be applied as low-cost missile warning sensors to affordably protect military and commercial aircraft from surface-to-air missiles. Also, experimental research in infrared countermeasures is developing threat adaptive techniques for robust defeat of current and future infrared weapons and sensors.

Space Weather research at Hanscom Air Force Base, Massachusetts, is another SAB-rated world-class technology development program. We continue to develop a modeling capability that specifies and forecasts space weather from the Sun to the ionosphere. In conjunction with this modeling capability, our Solar Mass Ejection Imager, launched in January

2003, is greatly increasing our ability to forecast solar-induced ionospheric disturbances that adversely impact communications systems and spacecraft.

At Edwards Air Force Base, California, the Propulsion Directorate is working on world-class research in polynitrogen propellants. The goal is to enable high performance monopropellant rocket propulsion systems with revolutionary performance. By improving the specific impulse of the propellant, we will have environmentally benign exhaust and reduced signatures. This could potentially improve storage, manufacturing, and rocket engine size.

COMBATING TERRORISM

While the traditional focus of S&T has been on developing long-term capabilities, the Air Force S&T Program also contributes to the current needs of the nation and our troops deployed in hostile areas. One example of an Air Force project receiving a great deal of attention since 9/11 is the Elastomeric Coating polymer, which the Air Force developed to protect key buildings and installations from close proximity explosions, such as air dropped weapons or truck bombs. This easy-to-apply spray coating provides greater structural integrity of exterior walls and prevents dispersion of debris as well as separation of wall elements. In addition to protecting lightweight shelters, this polymeric coating is currently being applied to the interior of the outer walls of the Pentagon.

Another transformational effort is the Vehicular Mounted Active Denial System (VMADS). The VMADS is being jointly developed with the U.S. Marine Corps and is a defensive millimeter wave system with many potential applications, including perimeter defense. It is a directed energy weapon that emits a non-lethal, non-damaging beam, which heats up the

skin of a potential adversary when in close proximity to the system. The resulting temporary pain causes the person to flee.

Yet another effort of significant interest is something called PING. PING is a standoff, microwave-based interrogation unit that has reliably identified AK-47s, rocket propelled grenades, and suicide bomber apparatus in field demonstrations. PING operates by illuminating potential threats and then categorizing the return reflected off metallic objects found in a crowd of people using a laptop computer and specialized software to determine specific weapon types. Metallic substructures on weapons resonate at unique, natural frequencies that permit automatic identification of concealed weapons. The PING demonstration unit is vehicle-mounted and can be positioned up to 100 meters away to monitor persons or groups of people entering a checkpoint for concealed weapons. The unit can also be remotely operated. This Air Force S&T program has been briefed to the Army and we are optimistic that PING will rapidly transition into operational use.

In the war on terror, Air Force Special Tactics Combat Controllers are changing the very nature of warfare. By performing operations deep in enemy territory, they help determine who the terrorists are, where their weapons are located, and who the innocent civilians are. Then, they precisely control the elements of airpower to defeat the terrorist threat, while taking care to spare innocent civilian casualties and minimize collateral damage. Then, these same Special Tactics Combat Controllers are there to provide instant battle damage assessment. We call these deep engagements, "Battlefield Air Operations (BAO)."

The Air Force is accelerating new technology to these Special Tactics Warriors in the form of significant improvements to their BAO Kit of equipment. As a result of this Air Force enterprise, our Special Tactics Warriors will soon have a digital machine-to-machine capability

that helps to quickly connect the right aircraft, with the right munitions, guided precisely to the right target, at just the right time, to achieve the desired effect. This new automated process helps to reduce the time it takes to target the terrorist threat, while at the same time reducing human error in the targeting process.

Working collaboratively with the Special Tactics Warriors, the Air Force "BAO TIGER TEAM" has also partnered with a national team of industry to field significant enhancements of increased capability, while reducing the weight and size of the individual BAO Kit equipment. They are performing these improvements by developing, prototyping, testing, building, and fielding these BAO Kit improvements in very rapid spirals. These new BAO capabilities will help to save American lives, and the lives of innocent civilians. BAO provides a revolutionary and highly effective way to combat the terrorist threat.

TRANSFORMATIONAL TECHNOLOGIES

There are many other Air Force technology areas that deserve special mention. Let me highlight just a few examples. As mentioned earlier, there's our transformational communications technology development program, whose laser communications technology efforts promise to increase data transfer rates at least ten-fold compared to current radio frequency communications systems. Additionally, laser communications use a narrow beam, which decreases the likelihood of intercept and increases resistance to jamming. While laser communications have a high potential to revolutionize satellite communications, there are technical challenges to overcome such as precision pointing and tracking, weather constraints, and adapting the equipment for use in space. We continue to work on the technology challenges and are implementing the results of our recently concluded study to determine the best

architecture for implementing laser communications technologies to complement and integrate with radio frequency-based systems.

To increase aircraft survivability and operational efficiencies, the Air Force is developing the F/A-22 and F-35 - Joint Strike Fighter, aircraft that can carry and employ weapons from both external and internal weapons bays. To increase the number of weapons the flight vehicle can fit into its internal weapons bays, part of our investment strategy focuses S&T funding on developing and demonstrating smaller precision weapons.

One of the small munitions currently being flight demonstrated at Eglin Air Force Base is the Low Cost Autonomous Attack System (LOCAAS) technology program. The LOCAAS is a 100-pound class powered munition of which the primary target set is moving and relocatable targets. This Advanced Technology Demonstration (ATD) program will demonstrate the effectiveness and military utility of this type of munition for the Lethal Suppression of Enemy Air Defenses (SEAD), Theater Missile Defense (TMD) Attack Operations, and Armor/Interdiction mission areas. LOCAAS will integrate a laser radar precision terminal seeker with autonomous target recognition algorithms, a multi-modal warhead, Global Positioning System (GPS)/Inertial Navigation System (INS) mid-course guidance, and a miniature turbine engine with a fly-out range of 100 miles.

In Fiscal Year 2005, the Air Force will conduct a cooperative program with the Royal Australian Air Force (RAAF) using the small diameter bomb. A test program on the RAAF F-111 aircraft in Australia is scheduled for the first quarter of the Fiscal Year 2005. This will be an important test for both nations – the U.S. is able to test munitions release at supersonic speeds and Australia benefits from the test results. These results could enable maturation of the computational simulation codes for separation of symmetric and asymmetric miniature weapons,

providing for a reduction in the risk and cost of weapons certification efforts for aircraft with internal weapons bays such as the F/A-22, the F-35 - Joint Strike Fighter, and unmanned combat air vehicles.

To continue the trend of miniaturization of space platforms, the Air Force is also conducting the Experimental Spacecraft System (XSS) series to demonstrate increasing levels of microsatellite technology maturity. Following the successful XSS-10 mission in January 2003, we plan to launch the XSS-11 microsatellite in late 2004. XSS-11 will demonstrate fully autonomous operations and provide experience with command and control in proximity operations to another space object over several months. If successful, this could provide the capability to repair, refurbish, and perform maintenance operations from unmanned microsatellites.

One of the most transformational and quickly deployable technologies available today is command, control, and communications technology, also known as information technology. This technology is at the heart of our Moving Target Indicator Exploitation program, which is developing web-enabled automated tools to exploit data from current and future sensor systems such as the Joint Surveillance Target Attack Radar System, better known as JSTARS. The effort is focused on four technology areas: ground moving target tracking; motion pattern analysis; behavioral pattern analysis; and sensor resource allocation and scheduling, which provide the capability to track moving targets and get the information to the operations center.

BREAKTHROUGH TECHNOLOGIES

In recent years, we have all come to appreciate the success of unmanned vehicles. We hear over and over again the tremendous operational advantages that systems such as Predator

and Global Hawk are bringing to warfighters from all Services. Over the first two decades of the 21st Century, advances in micro unmanned air vehicles will provide significant additional capabilities to our Armed Forces. Micro air vehicles utilize advances in microscale aerodynamics, electronic miniaturization, munitions, and propulsion to package sensory and weapons payloads into highly reliable, on-demand systems. These systems will provide unprecedented levels of situational awareness in the most severe threat environments. Whether we are operating in urban environments, sensing bio-chemical dispersion through the atmosphere, or looking over the next hill, our troops will have the awareness needed to fight and survive. These systems will provide the persistent intelligence, surveillance, and reconnaissance in high threat environments needed by our troops on the ground and our airmen in the air. When called for, swarms of these vehicles will cooperate together to generate both lethal and nonlethal effects.

In the next 50 years, advancements in nanotechnology will provide the greatest change in how man operates since the invention of powered flight itself. Nanotechnology is a science and a series of disciplines that works at the atomic and molecular level to create structures, materials, and devices through improved molecular organization. By working with elements at the level of nanometer scale, we have access to the building blocks of nature. This will fundamentally change the way materials and devices will be produced in the future. The ability to synthesize nanoscale building blocks with precisely controlled size and composition and to then assemble them into larger structures with unique properties and functions will revolutionize segments of the materials and device industry. The benefits that nanostructuring can bring include lighter, stronger, and programmable materials; reductions in life cycle costs through lower failure rates; innovative devices based on new principles and architectures; nanosensors and nanoprocessors;

and use of molecular/cluster manufacturing, which takes advantage of assembly at the nanoscale level for a given purpose.

Another significant breakthrough technology that will change the way we develop systems is our work in biotechnology. Biology has developed unique materials and processes that may be exploited in non-biological systems. Our research is focused on studying the science necessary to incorporate biological components and organisms into Air Force systems. For example, in biomemetics, we research the adaptation of natural biological sensor in reptiles. The natural infrared sensors in reptiles do not need to be cooled. We hope to adapt this biological process to Air Force sensor applications that normally require cryogenic cooling.

TECHNOLOGY TRANSITION

The majority of Air Force S&T is contracted with industry and universities. This promotes relationships between the scientists and engineers conducting the research and lays the foundation for technology transition. Strong connections between the technology supplier and the end user help speed transition of technology to the warfighter. In addition, the various transition programs in which the Air Force participates further cement this foundation. Air Force technology transition efforts include Advanced Technology Demonstration projects, Small Business Innovation Research (SBIR) contracts, and Cooperative Research and Development Agreements (CRADAs) among others.

The Applied Technology Councils discussed earlier were initiated in Fiscal Year 1999 to foster top-level user involvement in the transition of technology from the laboratory to the system developer to the operational user. As noted, these Councils review and approve Air Force Advanced Technology Demonstration projects and ensure that the Major Commands plan

for the transition of successful technology by tying approved Advanced Technology Demonstration projects to planned Major Command Future Years Defense Program funding.

Another Air Force technology transition tool is the CRADA — an agreement between a government laboratory and a non-federal party under which the laboratory provides personnel, facilities, equipment, or other resources (but not funds) with or without reimbursement and the non-federal party provides funds, people, services, facilities, equipment, or other resources to conduct specific research and development efforts that are consistent with the agency's mission.

These efforts along with many other programs, such as Dual-Use S&T, Independent Research and Development, Mentor-Protégé, Personnel Exchanges, etc., are mutually beneficial to the Air Force and the contractors and universities with whom we collaborate. Technology transition is a key component of the Air Force S&T Program and is vital to our pursuit of national security requirements.

SECTION 253 STUDY

Section 253 of the National Defense Authorization Act for Fiscal Year 2002, Public Law 107-107, directed the Air Force, in cooperation with the National Research Council of the National Academy of Sciences, to carry out a study to determine the effect of S&T program changes of the past two years. The Air Force Science and Technology Board (AFSTB) of the National Research Council prepared a written report, which the Secretary of the Air Force forwarded to Congress as directed. The findings contained in this report indicated that overall the Air Force has made considerable progress during the past two years in strengthening its S&T Program. The AFSTB noted that great progress has been achieved in increasing the visibility of the S&T portfolio within the Air Force, but challenged us to continue working to stabilize

funding levels, strengthen our workforce, and reestablish the "development planning" process. As the report indicated, however, we have already begun many initiatives targeted towards strengthening these areas and will continue to pursue them in the future. In fact, at almost $2 billion, the Fiscal Year 2005 President's Budget request for Air Force S&T is funded at a level to achieve the distinctive capabilities supporting Air Force Core Competencies. In addition, we have also taken steps to strengthen our scientist and engineer workforce through various recruitment and retention initiatives. Finally, the Air Force has shifted from a threat-based approach to a capabilities-based approach to making investment decisions and providing for requirements generation planning. This transformation will be key to our ability to determine what is necessary to support our defense strategy in the years to come. "Development planning" will be a vital and fully integrated part of the Air Force's new Capabilities-Based Planning process.

CONCLUSION

In conclusion, the Air Force is fully committed to providing this nation with the advanced air and space technologies required to meet America's national security interests around the world and to ensure we remain on the cutting edge of system performance, flexibility, and affordability. The technological advantage we enjoy today is a legacy of decades of investment in S&T. Likewise, our future warfighting capabilities will be substantially determined by today's investment in S&T. As we face the new millennium, our challenge is to advance transformational and enabling technologies for an Air and Space Force as we continue to move aggressively into the realm of space activities. The Air Force S&T Program provides for the discovery, development, demonstration, and timely transition of affordable technologies that

keep our Air Force the best in the world. As an integral part of the Department of Defense's S&T team, we look forward to working with Congress to ensure a strong Air Force S&T Program tailored to achieve our vision of a superior Air and Space Force.

Mr. Chairman, thank you again, for the opportunity to present testimony, and thank you for your continuing support of the Air Force S&T Program.

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

MARCH 25, 2004

QUESTIONS SUBMITTED BY MR. SAXTON

Mr. SAXTON. What do you consider the critical challenges facing the Department of Defense science and technology program? What new technical challenges should be addressed in the Defense S&T program?

Dr. TETHER. I believe DARPA's eight strategic thrusts and the work we continue to do in core technologies are congruent with the critical challenges and are well aligned with the DoD QDR transformational goals. These research areas, which are discussed in both in my testimony and our document *Bridging the Crap*, are:

Detection, Precision ID, Tracking, and Destruction of Elusive Surface Targets
Robust, Secure Self-Forming Tactical Networks
Networked Manned and Unmanned Systems
Urban Area Operations
Detection, Characterization, and Assessment of Underground Structures
Assured Use of Space
Cognitive Computing
Bio-Revolution
Materials
Microsystems
Information Technology

I am confident these important technical challenges and opportunities will produce major new capabilities for our forces in the long term.

Let me give you an example of this in what we are doing for Robust Secure Self-Forming Tactical Networks. DoD is in the middle of a transformation to what is often termed "network-centric operations." The key to this is networks—networks that must be as reliable, available, and survivable as the platforms they connect. They must distribute huge amounts of data quickly and precisely across a wide area. They must form themselves without using or building a fixed infrastructure. They must withstand attempts by adversaries to destroy, disrupt, or listen in on them. These challenges must be met, as networks are becoming as important as our weapons platforms.

DARPA is working to ensure that our forces will have these networks. This means research in areas such as mobile *ad hoc* self-forming networks; information assurance and security; spectrum management; heterogeneous networks; and antijam and low probability of detection/intercept communications.

I have another example how our work in core technologies like materials creates crucial technical opportunities. In the mid-1990s, DARPA worked on lowering the cost of a ceramic, boron carbide. The material was expensive, and the Services had little interest in it. Also, it was easy for someone who was not a materials scientist to consider the work esoteric and, therefore, a waste of time and taxpayer money.

However, DARPA's investments eventually led to inexpensive plates of boron carbide. This helped clear the way for the improved Interceptor body armor that is used today by troops in Iraq and Afghanistan, This body armor—resulting from material research that seemed irrelevant at one time—is saving countless lives that otherwise would be lost.

Dr. KILLION. I cannot answer for the DoD wide S&T challenges. However, on behalf of Army S&T, we have several important challenges that we believe are supported by DoD. Perhaps most important is the challenge to maintain technology superiority in today's forces in fighting the Global War on Terrorism and providing adequate investments to enable our Soldiers in the Future Force. The technical challenges that the Army S&T program is working to address include Force Protection-especially for our Soldiers-and maturing sufficient technology for our Future Combat Systems Spiral insertions to meet program milestones. A key technical challenge for both Current and Future Forces is the development of robust, dynamic networks that provide real time situational awareness on the move.

Admiral COHEN. Two of my highest priorities are transition and funding for basic research. I am committed to long-standing, sustained stable support of basic scientific research, especially with respect to Naval unique disciplines. Transition is of utmost importance, as the success of S&T is not measured simply by the basic

science it supports, but also by the active and successful transition of that science to supporting America's Sailors and Marines in the field. The Department of the Navy S&T program makes balanced investments in discovery and invention as well as exploitation and deployment of advanced technologies for the nation's Naval warfighters.

The Fiscal Year 2006 Budget requests funding to develop several Innovative Naval Prototypes. These initiatives include an electro-magnetic railgun prototype; new concepts for persistent, netted, littoral anti-submarine warfare; technologies to enable Seabasing; and the Naval tactical utilization of space. Innovative Naval Prototypes represent revolutionary "game changers" for future naval warfare.

Mr. ENGLE. From an Air Force Science and Technology (S&T) perspective, there are several critical challenges that could require technology solutions. A prime example of these challenges would be the demands of joint and coalition operations carried out in very diverse parts of the world in support of the Global War On Terrorism. This overarching challenge includes Information Operations; Command, Control, Communications, Computers Intelligence, Surveillance, and Reconnaissance (C4ISR); and Urban Operations—all of which are being addressed in the Air Force S&T Program.

Mr. SAXTON. Encouraging technology transition has been a major feature of the Defense Authorization Act for the past 2 years. What additional measures should be considered to accelerate the identification, development, and transition of new ideas and discoveries to development and acquisition programs and to speed the availability of new technology to our armed forces on the battlefield?

Dr. TETHER. Transition is a difficult challenge in any organization and hard to measure, but DARPA is doing a good job. Our approach is threefold: One, create a capability in universities and industry where it can be produced by people who want to sell it. Two, cultivate a constituency inside a Service for the technology by using them as agents. And three, get the Services to commit money in the outyears for the large systems items we are working on now. Underneath all this is the constant networking and salesmanship needed to convince people in industry and throughout DoD that a new technology is worth adopting.

The limited flexibility of our financial system does slow down DoD in seizing new opportunities. It's hard to find the money for new opportunities and even harder to reallocate it quickly to seize that opportunity.

One experiment has started in fiscal year (FY) 2005 to help reduce this funding problem.

The FY05 Appropriation Act includes $5.1 million for the Navy for the Defense Technology Opportunity Fund (DTOF), which is intended specifically to fund the speedy transition of technology from DARPA to the Navy. If the DTOF helps, and I suspect it will, I hope to see a similar fund for each of the Services.

Dr. KILLION. I cannot answer for the DoD. However, I believe the Army needs to make maximum use of the tools that we already have. We are using several DoD measures that have been enabled by past legislation. Among these are the Technology Transition Initiatives (TTI) and Quick Reaction Special Projects (QRSP). The Army has also established the Rapid Equipping Force organization to speed technology transitions to the forces engaged in the Global War on Terrorism. The Army S&T community is committed to providing advanced technology options to our warfighters as soon as possible.

Admiral COHEN. Transition of technology to the Fleet and Force is one of my highest priorities as Chief of Naval Research. In 2001 the Congress expanded the mission of ONR to ". . . manage the Navy's basic, applied, and advanced research to foster transition from science and technology to higher levels of research, development, test, and evaluation."

There are several initiatives at the Office of Naval Research to assist in the transition of science and technology.

The Future Naval Capabilities program is closely tied to the acquisition programs to deliver near-term capabilities for current systems. The program is focused on relatively mature technology in the exploitation and deployment portion of the science and technology portfolio.

Swamp Works finds advanced technological solutions that require relatively quick turnaround.

TechSolutions is web based process that quickly provides technical solutions to problems identified by Sailors and Marines throughout the operational Navy and Marine Corps.

The Commercial Technology Transition Office mission is to rapidly transition the best technologies from any source, including commercial solutions, into Department of the Navy programs.

The annual Naval-Industry R&D Partnership Conference cultivates partnerships between Government, Industry and Academia to leverage innovative concepts, technologies and business practices to address Naval Power 21 and global security requirements.

The Small Business Innovation Research (SBIR) Transition Assistance Program is a competitive 10-month program offered exclusively to SBIR and STTR Phase II award recipients. It assists SBIR-funded firms develop relationships with prime contractors and to help prepare the SBIR firm to win Phase III awards from the acquisition community.

Transition is of utmost importance, as the success of S&T is not measured simply by the basic science it supports, but also by the active and successful transition of that science to supporting America's Sailors and Marines in the field: discovery and invention as well as exploitation and deployment of advanced technologies for the nation's Naval warfighters.

Mr. ENGLE. The Air Force already has strong, established technology transition paths in place. For example, the Science and Technology (S&T) Program is an integral part of the Air Force Capability Review and Risk Assessment (CRRA) master planning process. This process supports Air Force Concepts of Operations or CONOPs, which provide the long-term roadmaps to get the right capabilities at the right time and place for the joint warfighter. Another way of identifying technologies for rapid transition to the warfighter is through our Applied Technology Councils (ATCs) and the Advanced Technology Demonstrations (ATDs). This process brings together the technology with the operational Major Commands to identify and prioritize those technologies and ATDs that could contribute to warfighting capabilities. Further, we invest about 80 percent of our S&T budget with industry. The Air Force believes that this is a very important mechanism for rapid transition of technology into fielded and developmental systems.

Mr. SAXTON. What role do the Defense laboratories and research, development and engineering centers play in the development and exploitation of advanced technologies for our armed forces?

Dr. TETHER. DARPA does not have any Defense laboratories or research, development and engineering centers, but those facilities are very important to us nonetheless. We use the personnel there as our agents for 70 percent of our funding, tapping into their expertise and, just as important, creating a knowledgeable constituency in a Service for our technology. The labs also generate new ideas—risky, far side ideas—that in many cases we then accelerate to the near side. We benefit from and depend on a strong system of Service labs.

Dr. KILLION. The mission of Army S&T is to foster innovation and accelerate and mature technology to enable Future Force capabilities and exploit opportunities to transition technology for the Current Force. This mission cannot be accomplished without our dedicated scientists and engineer workforce enabled by state of the art laboratory and research, development, and engineering center facilities.

Admiral COHEN. National defense should not be left exclusively to the dynamics of the free marketplace. DOD will continue to depend on high-technology systems to maintain its superiority over adversaries and reduce casualties, yet many of its technology developments have limited applications outside of Defense needs. Industry cannot and will not invest in long-term research over periods of years (or even decades) in areas with a high risk of failure and a very limited potential market. A cadre of the nation's best scientists and engineers must be maintained in an environment that is focused on Defense Science and Technology (S&T) issues. They will thus have the freedom to advance S&T in areas of little or no academic or industrial interest, provide a quick-reaction capability in times of emergency, and provide authoritative S&T advice to DOD leadership and the acquisition community.

In 2001, the Director, Defense Research and Engineering (DDR&E) requested the Naval Research Advisory Committee (NRAC) to lead a tri-Service study of the health and evolving missions of the DOD S&T laboratories in the post Cold-War environment. Study panel members were drawn from NRAC, the Army Science Board, and the Air Force Scientific Advisory Board. The resulting study report[1] stated:

". . . the Panel believes that, although the functions of the DoD laboratories have evolved, and will continue to do so, they continue to perform functions critical to national defense in support of their individual Service acquisition responsibilities under Title 10 of the United States Code. This section assigns the Service Secretaries the responsibility to provide the military capabilities required by the military chiefs of the armed forces. These responsibilities include developing tactical con-

[1] Naval Research Advisory Committee, "Science and Technology Community in Crisis," May 2002

cepts; managing research and development; acquiring weapons and supporting systems; recruiting, educating, and training personnel, etc. Put differently, the Services are responsible for their respective acquisition processes, and the Service laboratories "are integral components of the Military Departments' acquisition and combat support infrastructure."[2] Therefore, the DoD laboratories are still required to help their parent Services:

- ☐ Avoid technological surprise and ensure technological innovation
- ☐ Respond rapidly in time of urgent need or national crisis
- ☐ Act as principal agents in maintaining the defense technology base
- ☐ Serve as an intellectual partner in the national R&D enterprise
- ☐ Infuse the are of the possible into military planning
- ☐ Determine what can and cannot be done from a technical perspective
- ☐ Provide special-purpose facilities not practical or too costly for the private sector to support
- ☐ Act as a constructive advisor for DoD directions and programs based on their technical expertise
- ☐ Support the user (warfighter) in the application of emerging technology, and the introduction of new systems
- ☐ Translate user needs into technology requirements for industry
- ☐ Serve as a science and technology training ground for civilian and military acquisition personnel"

The NRAC report also cited a number of earlier authoritative studies that addressed this particular question. The tri-Service study panel considered two of them to still be so highly relevant to the current strategic environment that they were quoted as shown below in their report.

Admiral COHEN. In 1994-95, the National Science and Technology Council (NSTC) performed a review of Federal Laboratories, including those operated by the DOD. The Council's report, completed on 15 May 1995, stated:[3]

"The fundamental responsibility for DoD laboratories is to conduct science and technology programs in support of national security . . . the overriding mission of the DoD laboratories is national security. Although there are few if any technical constraints to other performers (industrial laboratories, universities) conducting R&D for the military-indeed, DoD outsources most of its R&D-there are compelling arguments for maintaining a quality DoD laboratory system. DoD laboratories are best able to translate between technological opportunities and the warfighters' needs, integrate technologies across life cycles and generations of equipment, respond rapidly to DoD needs, provide special facilities, and offer the necessary technical support to services to make them smart buyers and users of technology."

The above statement touches on a number of the functions that the DOD laboratories have performed over the years. The 1991 congressionally-mandated Federal Advisory Commission on Consolidation of Defense Research Laboratories articulated ten specific such functions:[4]

- ☐ "Infuse the art of the possible into military planning.
- ☐ Act as principal agents in maintaining the technology base.
- ☐ Avoid technological surprise and ensure technological innovation.
- ☐ Support the acquisition process.
- ☐ Provide special-purpose facilities not practical for the private sector.
- ☐ Respond rapidly in time of urgent need or national crisis.
- ☐ Be a constructive adviser for Department directions and programs based on technical expertise.
- ☐ Support the user in the application of emerging technology and introduction of new systems.

[2] Director of Defense Research and Engineering Memorandum for the Assistant to the President for Science and Technology, Subject: Department of Defense Response to NSTC/PRD #1, Presidential Review Directive on an Interagency Review of Federal Laboratories, 24 Feb 1995.

[3] Executive Office of the President, Office of Science and Technology Policy. "Interagency Federal Laboratory Review Final Report," May 15, 1995.

[4] Federal Advisory Commission on Consolidation and Conversion of Defense Research and Development Laboratories, Report to the Secretary of Defense, September 1991. The Commission was established by Public Law 101-510 to study the DoD laboratories and provide recommendations to the Secretary of Defense on the feasibility and desirability of various means to improve the operation of the DoD laboratories.

- ☐ Translate user needs into technology requirements for industry.
- ☐ Serve as a science and technology training ground for civilian and military acquisition personnel."

Mr. ENGLE. The Air Force Research Laboratory (AFRL) is an integral part of the Air Force acquisition process. AFRL works closely with Air Force technology customers and the master planning process to identify and focus those technologies that could provide advanced warfighting capabilities. The ultimate objective and metric for AFRL is the transition of technology into a weapon system. The Air Force Science and Technology (S&T) Program, conducted by AFRL, is focused on developing and demonstrating both short-term objectives and long-term challenges. This balanced investment approach focuses the S&T Program on those capability needs identified in the Capability Review and Risk Assessment master planning process.

Mr. SAXTON. A number of past studies that have examined the laboratory personnel issues have concluded that laboratory directors need to be capable of adjusting or rearranging personnel management practice to meet unique laboratory requirements. How will the adoption of Best Practices support the ability of the laboratory to better meet their mission requirements?

Dr. TETHER. Given that I don't have any laboratories to look after, I don't have much comment here, except I will say that our Section 1101 hiring authority has been of tremendous benefit in getting good people to work for us. I expect the similar provisions in the new National Security Personnel System will work to that end, too,

It's not simply a matter of the right people being available; you must be able to hire them in a way that's competitive with the private sector, which includes money, but also speed. Years of reports have lamented the poor match between the standard civil service system and recruiting high quality scientists and engineers. Our 1101 program has solved that problem for us, at least for the 40 slots we have.

Dr. KILLION. The Army's position continues to be that laboratory directors need to be capable of adjusting or rearranging personnel management practices to meet unique laboratory requirements. We anticipate that the new National Security Personnel System (NSPS), when fully designed, will incorporate many of the best practices from the predecessor Service laboratory demonstrations. We are hopeful that emerging NSPS personnel policies will provide the Army laboratory directors with a range of flexibilities to recruit and retain the highest quality engineers and scientists for the future workforce.

Admiral COHEN. Best Practices has been superseded by the National Security Personnel System (NSPS), which is still undergoing development. The Demonstration Laboratories will continue to operate under their current authorities until October 2008, at which time a determination will be made about whether NSPS will provide them with the same (or greater) flexibilities than they currently enjoy.

Mr. ENGLE. The ongoing Air Force Laboratory Demonstration Project, or Lab Demo, continues to provide the Air Force Research Laboratory with flexibilities key to hiring critical Scientist and Engineer (S&E) talent. These key flexibilities include a simplified classification system, broadband pay levels, and contribution based compensation, all of which have been very successful and have ensured that lab-unique requirements were accommodated. Based upon Best Practices, the newly authorized National Security Personnel System (NSPS) could also produce positive results in shaping our S&E workforce once implemented.

Mr. SAXTON. What is the status of the DOD vacuum electronics program?

Admiral COHEN. Navy FY05 funding for Vacuum Electronics (VE) totals $4.6M, of which $0.9M is 6.1 Basic Research and the remainder 6.2 Applied Research, in agreement with the Secretary of the Navy's commitment to Congress. The Navy program is focused on:

1. Development of simulation codes to allow first pass design success of new vacuum components
2. Research and Development of vacuum components for high power applications in the millimeter frequency regime (above 40 GHz) where solid state devices are not yet available.

Mr. SAXTON. What are the current requirements for advanced vacuum electronics devices and technologies in the DOD? Can these requirements be met by the commercial sector?

Admiral COHEN. Many legacy DOD RF systems use vacuum electronics, and it is likely that they will continue to do so into the future. The commercial sector is fully capable of meeting DOD requirements to provide these devices for additional systems and replacements. Most new systems operating below about 30 GHz tend to use sold state devices. The commercial VE sector does not have the resources (fi-

nance and expertise) to pursue research leading to new capabilities and improved performance of vacuum devices on its own.

Mr. SAXTON. What priority should the DOD assign to the vacuum electronics program?

Admiral COHEN. Although solid state devices are projected to gradually replace vacuum devices in DOD systems, beginning with lower powers at lower frequencies, vacuum devices will continue to be required for some high power and high frequency applications for the foreseeable future. Thus DOD plans to support a program of in-house basic research and applied research at a moderate level (-10 man years) to retain capability and expertise, comparable to investments in other mature technologies (e.g. radiation hardened electronics) of DOD interest.

Mr. SAXTON. The 2004 Defense Authorization Bill requires the DDR&E and the DoD Executive Agent for Space to jointly develop and implement a DoD space science and technology strategy. What progress is being made in the development of the DoD space science and technology program and its supporting strategy?

Mr. ENGLE. The 2004 Department of Defense (DoD) Space Science and Technology (S&T) Strategy was jointly developed under the leadership of DDR&E and the DoD Executive Agency for Space in response to 2004 Defense Authorization Bill direction. This strategy document provides guidance for DoD Space S&T activities and is derived jointly from both the Defense Science and Technology Strategy and the National Security Space Strategy. This document addresses Space S&T development, outlines strategy implementation, describes the process by which Space S&T is assessed, and identifies the means by which these goals can be achieved. The investment focuses in six specific areas: Assured Access to Space; Responsive Space Capability; Assured Space Operations; Spacecraft Technology; Information Technology; and the S&T Workforce.

QUESTIONS SUBMITTED BY MR. TURNER FROM TEXAS

Mr. TURNER. What is DARPA doing in (the area of engineered pathogens)?

Dr. TETHER. We agree with your view that we should pursue both broad spectrum and "bug to drug" defenses against engineered biological pathogens.

In broad spectrum, our strategy is to look for ways to eliminate the threat from whole classes of pathogens by going after fundamental aspects of what they are or what they do inside the body. Specifically, we are targeting microbial factors that cannot be reengineered by any known or foreseeable strategies. By exploiting these fundamental weaknesses, we will create defenses that cannot be evaded with engineering. For example, microbes have a fundamental structure or architecture to their DNA; you cannot be a microbe without it. We are using that fact to work on ways to boost immunity to a broad variety of microbes along with the effectiveness of existing vaccines. This microbial DNA-based strategy has progressed to human trials with the objective of markedly improving the effectiveness of the current anthrax vaccine. Another example is about half the pathogenic bacteria (including plague and tularemia) have a specific component of their cell walls, called "endotoxin," that causes most of their toxic effects in humans. We are working on ways to target endotoxins and render all such bacteria harmless.

We are also pursuing rapid "bug to drug." Our goal is to find ways to provide between 1 and 10 million doses of a therapeutic within 16 weeks of identifying a new pathogen. There are three legs to this strategy. First, our Unconventional Pathogen Countermeasures program and Protein Design Process program are melding biochemistry and complex mathematics so we can custom design therapeutic proteins that are effective against any new pathogen. Second, our Rapid Vaccine Assessment program is investigating ways to rapidly screen candidate vaccines and immune modifiers through what we call a "human immune system on a chip"; this could make the years of animal testing now required obsolete. Finally, we are beginning to look at how we might rapidly scale up the manufacturing of any new vaccine or therapeutic we might need. Several proposals are under evaluation that will revolutionize the way biologics and vaccines are manufactured.

Finally, we are always seeking new opportunities as scientific knowledge advances. Recently, we uncovered a technology that, with DARPA investment, will provide a remedy for any type of bacteria that has been engineered to be ciprofloxacin resistant.

FISCAL YEAR 2004 NATIONAL DEFENSE AUTHORIZATION ACT—DEPARTMENT OF DEFENSE'S BUSINESS TRANSFORMATION EFFORTS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
SUBCOMMITTEE,
Washington, DC, Wednesday, March 31, 2004.

The subcommittee met, pursuant to call, at 1:34 p.m. in room 2118, Rayburn House Office Building, Hon. Jim Saxton (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, CHAIRMAN, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. SAXTON. Good afternoon, ladies and gentlemen. The Subcommittee on Terrorism, Unconventional Threats and Capabilities meets this afternoon to learn more about how the Department of Defense (DOD) is modernizing its business processes and practices. Essentially, how are DOD business modernization efforts proceeding?

The Department's information technology request for fiscal year 2005 is 28.7 billion and is intended to support both ongoing operating requirements and programs, as well as programs in development. The subcommittee is mindful that while these funds may support many important IT systems, the Department continues to spend money to update legacy systems that the new systems will soon replace. It is the subcommittee's concern that these dollars are not being applied to business and warfighting programs, especially when our soldiers, sailors, marines, airmen, and pilots are conducting military operations around the globe.

As one of the world's largest and most intricate organizations, no one doubts running the day-to-day operations at the Department is challenging. With over $1 trillion in assets, nearly 1.6 trillion in liabilities, over 3.3 million military and civilian personnel, and disbursements of over 416 billion in fiscal year 2003, it is critical that the Department exercise effective judgment over its business operations. That is why we are here today. We are interested to learn what DOD is doing to bring its numerous financial management and business information technology systems into streamlined processes.

Many major commercial businesses have undergone significant business transformation in the past decade in order to stay profitable. Using the industry model, DOD would be wise to leverage such commercial best practices to improve its own business prac-

tices. Implementing an enterprise architecture using performance metrics to measure new system developments in breaking cultural barriers and parochial interests are a few examples of such practices.

The subcommittee remains committed to ensuring that resources are properly allocated to IT systems that fit into the department-wide enterprise architecture. However, we remain concerned that the Department's business system implementers are ignoring the law and the Department's leadership by continuing to develop stovepipe systems that do not conform to DOD enterprise architecture. It appears that there is widespread disregard for the law that requires procurement officials to obtain the comptroller's permission before purchasing IT equipment and services costing more than $1 million. Some IT and acquisition officials apparently believe it is easier to ask for forgiveness than to abide by the law and ask for permission first. These and other fundamental issues must be addressed as the Department handles day-to-day business functions to support military operations around the world.

[The prepared statement of Mr. Saxton can be found in the Appendix on page 315.]

Mr. SAXTON. At this time I would yield to my friend Marty Meehan for any comments he may wish to make.

STATEMENT OF HON. MARTIN T. MEEHAN, A REPRESENTATIVE FROM MASSACHUSETTS, RANKING MEMBER, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. MEEHAN. Thank you, Mr. Chairman. And thank you for calling this hearing, and thank you for all of the witnesses appearing.

At this critical juncture in the Department of Defense transformation, I can think of no more deserving topic that is more deserving of attention of the Department of Defense business plans and practices, especially with regard to informational technologies.

From my perspective, the importance of prudent IT investments is self-evident. Smartly applied and employed IT systems enable and ensure the American technological advantage in military surveillance, recognizance, detection, battle management, and targeting, and it most certainly should offer similar success in the DOD business management. Ultimately IT investments are the key enabler to reforming the Pentagon and winning the War on Terrorism.

Last year this committee was faced with difficult budgetary choices, and IT accounts suffered from congressional action. In my view, much of this action resulted from unclear, inconsistent, or insufficient information provided by the Department. But most of these issues have been addressed over the past year. This year is a new year. It is my hope that our witnesses will help us gain confidence in the effort to leverage commercial best practices throughout the Department.

I am concerned when we hear reports of redundancy, inconsistency, or unauthorized spending on some accounts. It is my hope that such reports are exaggerated, for the mission is too important.

I look forward to hearing from the witnesses and am looking forward to the witnesses responding to my concerns and the concerns voiced by the Chairman.

Again, Mr. Chairman, I thank you for calling this hearing.

Mr. SAXTON. Thank you.

Mr. SAXTON. Today we are pleased to have two panels of witnesses for our proceedings, one from the government and one from industry. Both share their perspectives on the Department's businesses, transformation efforts.

I would like to welcome our first panel of witnesses. They are Dr. Gregory D. Kutz, Director, Financial Management and Assurance, from GAO; Ms. JoAnn Boutelle, Deputy Chief Financial Officer, Department of Defense; Dr. Margaret Myers, Principal Director for the Deputy Chief Information Officer, Department of Defense; Gary L. Winkler, Director, Enterprise Integration, Department of the Army; Mr. David Wennergren, Chief Information Officer, Department of the Navy; Brigadier General John R. Thomas, Director C4/Chief Information Officer, United States Marine Corps; and Mr. John M. Gilligan, Chief Information Officer, Department of the Air Force.

At the outset, I ask unanimous consent that all Members' and witnesses' written opening statements be included in the record. Without objection, so ordered.

Mr. SAXTON. I also ask unanimous consent that all articles, exhibits, and extraneous or tabular material referred to be included in the record. Also without objection.

Mr. SAXTON. Mr. Kutz, the floor is yours, sir.

STATEMENT OF GREGORY D. KUTZ, DIRECTOR, FINANCIAL MANAGEMENT AND ASSURANCE, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY RANDOLPH C. HITE, DIRECTOR, INFORMATION TECHNOLOGY ARCHITECTURE AND SYSTEMS, GENERAL ACCOUNTING OFFICE; JOANN BOUTELLE, DEPUTY CHIEF FINANCIAL OFFICER, DEPARTMENT OF DEFENSE; MARGARET E. MYERS, PRINCIPAL DIRECTOR FOR THE DEPUTY CHIEF INFORMATION OFFICER, DEPARTMENT OF DEFENSE; GARY L. WINKLER, DIRECTOR, ENTERPRISE INTEGRATION, CIO/G–6, DEPARTMENT OF THE ARMY; DAVID M. WENNERGREN, CHIEF INFORMATION OFFICER, DEPARTMENT OF THE NAVY; JOHN M. GILLIGAN, CHIEF INFORMATION OFFICER, DEPARTMENT OF THE AIR FORCE; AND JOHN R. THOMAS, BRIG. GEN., DIRECTOR C4/CHIEF INFORMATION OFFICER, UNITED STATES MARINE CORPS

Mr. KUTZ. Mr. Chairman and Representative Meehan, thank you for the opportunity to discuss business transformation at the Department of Defense.

The recent success of our forces in Iraq has clearly demonstrated that our military forces are second to none. However, that excellence is often achieved despite the enormous problems with DOD's business systems and processes. The following two examples illustrate these problems.

First, 94 percent of mobilized Army National Guard soldiers that we investigated had pay problems. These problems distracted these Special Forces and Military Police from their missions, imposed fi-

nancial hardships on their families, and has had a negative impact on retention. Our soldiers deserve better.

Second, DOD was unable to effectively recall 250,000 chemical and biological protective suits from its inventory. As a result, many congressional Members were concerned that our forces in Iraq were issued these defective suits. Thousands of these defective suits were sold to the public on the Internet, including 379 that we purchased in an undercover operation. And thousands were also improperly issued to local law enforcement agencies with no warning that use could result in death or serious injury.

DOD still finds duplicative systems contribute to these and other problems and will cost taxpayers $19 billion in 2004. That is $52 million a day. Attempts to modernize DOD's business systems routinely cost more than planned, miss their schedules by years, and deliver only marginal improvements, or are terminated with no benefit at all.

DOD's senior leadership is committed to successful transformation of the Department's business operations and has taken positive steps. With waste and inefficiency estimated at more than $20 billion a year, the success of DOD's efforts is critical.

Mr. Chairman, that ends my testimony. I have Mr. Hite, who is an information technology expert, with me for questions.

Mr. SAXTON. Thank you very much.

[The prepared statement of Mr. Kutz can be found in the Appendix on page 318.]

Mr. SAXTON. Ms. Boutelle.

Ms. BOUTELLE. Mr. Chairman and Representative Meehan, I am here to discuss the Department's business management transformation effort.

For many years the Department's business management systems have been unable to satisfactorily interact with each other; to provide DOD decisionmakers with timely, accurate, and reliable information; to fulfill all the financial management laws, standards, and requirements; and to produce auditable financial statements.

The primary cause of these deficiencies was that for decades we allowed the components to develop and use their own processes and systems. There was no requirement to adhere to a DOD-wide architecture or set of common standards. The Secretary created the Business Management Modernization Program, BMMP, to manage the transformation of the Department's conglomeration of complex business processes and systems. The BMMP output will be a DOD-wide business enterprise architecture of transformed processes, data requirements, and internal controls. This architecture will guide the Department to eliminate redundant and inefficient systems and processes. We are doing this with a top down incremental approach.

We are at a critical stage in our transformation. We are off to a strong start, but much remains to be done. We face difficult challenges as we maneuver our way during the next several years. Using the architecture, we are driving the Department to transform business processes as rapidly as possible.

The transformation is a complex and difficult challenge. What is at stake is nothing less than the future quality and cost of DOD management of hundreds of billions of dollars in assets, liabilities,

and appropriations. Transformation is absolutely crucial to the Department's ability to enhance American's national security in this era of terrorism and uncertainty. The speed, accuracy, interoperability, reliability, and dependability of our information resources are critical. The Department has a comprehensive program and plan to transform its business processes and systems in a sustainable way. We want and welcome Congress's support and assistance to complete this historic undertaking.

Thank you.

Mr. SAXTON. Thank you very much, Ms. Boutelle.

[The prepared statement of Ms. Boutelle can be found in the Appendix on page 350.]

Mr. SAXTON. Dr. Myers.

Dr. MYERS. Mr. Chairman and members of the subcommittee, I am pleased to be here to discuss the role of the DOD Chief Information Officer in the Department's business transformation.

I would like to start by following up on your remarks about the 28 billion information technology (IT) investment. That 28 billion over the last couple of years has remained relatively flat. Of that 28 billion, there is 5 billion in business information technology, and the trend has been going down on the business IT. Meanwhile, there is about 7 billion in warfighting IT, and the trend has been going up. And the third category is the enterprise information environment that underpins both the business and the warfighting IT, and that has remained flat also at about 16 billion.

So what you can glean from that and what the next four witnesses will address is that they have, in fact, already begun the business transformation. And the reason why they have started is because everything that they can save from the business IT and invest in the warfighting IT is a major boon to the forces that they support.

So in that context, the Department's Business Management Modernization Program is an unprecedented effort to build a competitive advantage by transforming how the Department does business. In that context, the DOD CIO partners with the comptroller in the development of the business enterprise architecture and also in the development of a new policy for portfolio management so that we can better manage how we invest—better manage our IT investment.

Mr. Chairman, that concludes my remarks.

Mr. SAXTON. Thank you very much, Dr. Myers.

[The prepared statement of Dr. Myers can be found in the Appendix on page 356.]

Mr. SAXTON. Mr. Winkler.

Mr. WINKLER. Mr. Chairman and members of the subcommittee, thank you for the opportunity to provide testimony describing the Army's participation in support of DOD's business transformation efforts. I have submitted a longer statement for the record, but would like at this time to make a few short comments.

Today we are an expeditionary Army supporting our Nation in the Global War on Terrorism. Also, our Army is in the midst of a massive transformation to create a more agile, adaptable, and deployable force. Business transformation is a critical part of this effort. We are working to achieve a seamless factory to foxhole, a

continuum of operations to support our deployed forces. Our processes and systems are being transformed to provide timely and accurate information to decisionmakers at all levels and all areas.

The Army fully supports DOD's Business Management Modernization Program, BMMP. We have an Army architecture integration cell that is actively involved in the DOD business enterprise architecture, BEA, and works directly with the architects in the Army's business domains to integrate their efforts into both the BEA and LandWarNet, the Army's portion of the global information grid.

We also have an Army enterprise integration oversight office that works closely with the DOD comptroller to guide and integrate Army BMMP efforts across our domains. Our specific BMMP efforts include piloting a general fund enterprise business system that will implement a commercial enterprise resource planning system to replace several major legacy systems. The resultant system will be a key module of BMMP.

In the human resources domain, the Army will be the first service to completely implement the Defense Military Integrated Human Resources Management System, DIMHRS, in 2006. This will result in the elimination of 33 Army human resources systems.

Finally, BMMP is acting as a catalyst to propel Army transformation efforts. As we all know, transformation is more about people and culture than it is about technology. The governance processes associated with BMMP complement the cultural changes taking place in the Army that are necessary to achieve transformation objectives.

Thank you for this opportunity to discuss the Army's participation in and support of DOD's business transformation efforts.

Mr. SAXTON. Thank you very much.

[The prepared statement of Mr. Winkler can be found in the Appendix on page 361.]

Mr. SAXTON. Mr. Wennergren.

Mr. WENNERGREN. Mr. Chairman and distinguished members of the subcommittee, thank you for the opportunity to appear before you today.

I would like to quickly highlight for you how the Navy and Marine Corps team is leveraging the power of information technology to transform our warfighting and warfighting support processes.

Netcentric warfare not only requires that information is exchanged between sensors and shooters, but also to logistics, maintenance, and resupply organizations, breaking down the traditional barriers between tactical and nontactical systems. The transformation of our business practices is being driven by and is inseparable from our warfighting transformation. Our efforts are integrated with the rest of the Department of Defense since the flow of information must be available to our joint allied and coalition partners. And we have been key contributors to the development of the DOD global information grid and business enterprise architecture as well as the Federal enterprise architecture.

In attaining this netcentric vision, a number of important initiatives are already delivering results. The Navy and Marine Corps Internet (NMCI) is providing our enterprise network innumerous consolidation opportunities, including the elimination of thousands

of legacy applications. Standards-based commercial solutions like enterprise resource planning, or ERP, are replacing the government-developed solutions of the past. We are reengineering our processes to maximize the efficiencies gained from our application of technology.

While we have made significant progress, much work remains to be done. The funding in our fiscal year 2005 budget is crucial to continuing this transformation. The benefits of NMCI, ERP, and convergence on the right set of Web-based applications are what will make this netcentric vision a reality. These efforts must continue so that we don't have to fall back on the stand-alone solutions of the past that were not integrated and didn't provide timely and accurate information to our warfighters. We have the leadership, guidance, and processes in place to complete this transformation, and the opportunities are tremendous.

Thank you for your continuing support of this important work, and I will be happy to answer any questions that you have.

[The prepared statement of Mr. Wennergren can be found in the Appendix on page 367.]

Mr. SAXTON. General Thomas.

General THOMAS. Mr. Chairman and distinguished members of the committee, thank you again for the opportunity to appear before you once again to tell the Marine Corps' story on business transformation.

Our business systems are critical to the efficient management of the Marine Corps and provide for the necessary support and welfare of our marines and sailors. As Chief Information Officer (CIO), I am working with the functional area managers as they work in the BMMP process, as well as with the other services and members of the Department.

While BMMP is a relatively new process, there are some clear benefits to the Marine Corps. The integrated approach enables the Marine Corps to partner with the sister services, avoiding the risk of stovepipe systems and processes. It is also facilitating the early identification of best practices of business operations. In the long run, it should help reduce the amount we spend on business operations, and allow us to then apply those resources for core warfighting functions, as we have already heard. Further, it is helping us to identify strengths and weaknesses in our legacy systems, thereby helping us to expose the differences to assist in senior management decisions.

The Marine Corps supports the BMMP process and the business enterprise architecture, but we are also mindful of the fact that in some instances one size doesn't fit all, as a system or application that is optimized to support shore-based forces may be inadequate or require significant reengineering for afloat forces and vice versa. There are numerous issues we must consider as we strive to adopt enterprisewide business solutions. Our marines and sailors depend on these business systems to support them as they deploy around the world every day in harm's way.

Mr. Chairman, that concludes my statement, and I will be happy to take any of your questions.

Mr. SAXTON. Thank you very much, General.

[The prepared statement of General Thomas can be found in the Appendix on page 392.]

Mr. SAXTON. Mr. Gilligan.

Mr. GILLIGAN. Mr. Chairman, distinguished members of the subcommittee, what I would like to do is to share with you some perspectives on what the Air Force has done in our business systems.

First, what I would like to say is that the Air Force about 4 years ago made a conscious decision that we would not aggressively adopt commercial ERP solutions. We decided that the risk inherent in that was too great. However, we needed to improve the ability of our business systems to be able to support our warfighters, and so what we did was to leverage commercial Web-based technologies and middleware to be able to dramatically improve the ability of our legacy applications to support the warfighter.

What we have done in a couple of examples I think is quite remarkable. For example, in our supply area we have been able to take our legacy supply system, a batch-based—batch COBAL-based system, and with a Web front end and middleware, we have been able to integrate the supply accounting information across the Air Force to make it Web-accessible-and to dramatically to reduce the number of our supply technicians by over 500 people.

So now, as a result of that, in Operations Iraqi Freedom and Enduring Freedom, what we have been able to do is have worldwide visibility, far faster processes to deal with supply shortfalls. And also, we freed up people that have now been able to go into other parts of the Air Force.

In the personnel area, we likewise use these same technologies, and through the Air Force portal now airmen are able 24 hours a day to be able to access their personnel records to be able to make changes, to access their pay records, and to be able to do this whether they are on the job, at home, or deployed.

What we have been able to do in leveraging these technologies is to provide a single user interface to the users and to leverage a program that is a DOD-wide program called the Global Combat Support System. We have moved our increasingly important data to an enterprise data warehouse, and we have begun to posture for the acceleration of the fielding of the BMMP program; in particular, the Air Force has undertaken the lead in a pilot program called the Defense Enterprise Accounting and Management System, which will modernize our financial enterprise.

In addition, however, we provide very rigorous oversight of our business investments. Since 2002, our investments in business systems have been capped at about $600 million a year. As a percentage, however, the investments have decreased from about 12 percent of our IT budget to about 9 percent of our IT budget is now business systems. In a parallel fashion, however, our warfighting expenditures have increased from 27 percent of our IT budget to now 48 percent of our IT budget. The bottom line is we are spending our IT dollars on increasing our warfighting capability.

We have used processes such as portfolio management and business cases to provide rigorous oversight. I will deliver to the committee staff all of our business cases. It amounts to about 19,000 pages of documentation on each of our 222 investment programs. Internal to the Air Force, not only do we develop these documents,

but we score them, and based on the scoring we will decide whether the programs will continue to receive funding.

The bottom line, what we have done is we have leveraged our legacy systems to provide improved capabilities to the warfighter, we have applied a rigorous management oversight to our business systems and capped the investments as we prepare for the modernization, and we have continued to leverage our IT to support our warfighters.

That concludes my statement. I look forward to your questions.

Mr. SAXTON. Thank you very much.

[The prepared statement of Mr. Gilligan can be found in the Appendix on page 379.]

Mr. SAXTON. Mr. Kutz, you gave us two examples that seem to be examples of IT gone awry. One was that 94 percent of the Army National Guard folks had pay problems. That is almost everybody. And the bio/chem biosuits that were defective and not recalled is another fairly serious problem. You referred to these things as waste and inefficiency. Others would refer to them as fraud, waste, and abuse. Were you being polite, or is it fraud, waste, and abuse, or waste inefficiency? How would you characterize this?

Mr. KUTZ. Well, we characterized it in the other hearings we have had on this as abuse. But the unfortunate abuse was of the soldiers and their families in this case, and how the soldiers and families went through numerous hardships and challenges as a result of the numerous errors in their pay. And these were case study examples of Special Forces and Military Police across the country. And there was actually a seventh unit that was deployed to Iraq when we did the work.

But the abuse was of the soldiers. There were improper payments made to the soldiers, so that would be potentially wasteful spending, but there were just as many underpayments of the soldiers as there were overpayments of them.

Mr. SAXTON. Let us talk about the Army National Guard problem. Did your investigation or studies go far enough to determine what it was that caused this significant problem?

Mr. KUTZ. Yes. We did a systematic look it. It was a combination of human capital and processes and the automated systems. With respect to human capital, we found issues such as poor customer service. Some of the mobilization and demobilization sites did not have enough people to process the volume going through. There was confusion as to who was responsible in many cases for the pay, such as the Army National Guard versus the Army. And with respect to automated systems, we found that the nonintegration of those systems was a major factor in the pay errors.

For example, an order would be written from the order writing system, and instead of that system interfacing and automatically making sure a soldier got paid, someone would have to go in and manually input into the pay system to make sure that that soldier was paid. So the lack of interface or integration between personnel and the pay and the order-writing systems caused a lot of the errors. And I know Defense Integrated Military Human Resources System (DIMHRS) was mentioned here earlier as one of the solutions to that. Certainly in the long run there is going to have to be complete reengineering of this to fix it.

Mr. SAXTON. Let us take these problems, these underneath issues, one at a time.

On the issue of not having enough personnel, is that because we are into a situation that we have never been in before, and the volume was more than was ever expected, and, therefore, we had to fix this process as we went along simply because we haven't done this before?

Mr. KUTZ. I believe there was some of that. There was also some backlogs of soldiers at various sites, because I believe when there was negotiation before the war in Afghanistan for our soldiers to go to Turkey, there were people that backed up at some of the bases. But there was in some of the early stages of some of the activities a lack of planning and insufficient people to process the volume. I believe that some of that has been dealt with, and I guess the DOD witnesses may be able to answer as to what actions have been taken there. But that is still somewhat of a problem.

Mr. SAXTON. In the world of IT—let me put it this way. The world of IT is not the only place where we have found that we need to make adjustments to our processes. There is another hearing going on in town that is focusing on did we do enough before 9/11? And I am wondering, are any of these issues issues that we should have been ready to take care of, or was it just an overwhelming set of circumstances that caused our system to break down?

Mr. KUTZ. No. I think that the Department has been attempting to modernize its personnel and pay systems for years, possibly decades, and they have been unsuccessful to date in doing so. The DIMHRS system that was mentioned earlier was supposed to originally be deployed 3 or 4 years ago. So that has slipped in its schedule by a number of years, and that has had real consequences on the soldiers on the ground. They need that new system to be paid timely and accurately.

Mr. SAXTON. Okay. Let us move on to another issue that you mentioned. You said that the waste, inefficiency, or words to this effect, cost about $20 billion a year. That seems to me to be a very significant problem. Can you discuss maybe some examples of things that happened because of the inappropriateness of our capabilities?

Mr. KUTZ. Yeah. The $20 billion or more, that is actually Secretary Rumsfeld, when he first launched the business modernization program, estimated that 5 percent or more of the Department's budget could be saved through successful transformation. Let me give you a few examples of that. The first one would be the business systems. I think everyone at the table here could probably agree that if we are successful in modernizing the systems and going from the thousands of systems that we have today to possibly hundreds of systems in the future, that billions of dollars could be freed up and better used.

We have got other issues where we are buying inventory we don't need or selling inventory that we actually do need. And I can give you an example of that where we were able to purchase on the Internet—the Department had accidentally excessed some of the GAS list or the newer chem/biosuits, and we bought them on the Internet for $3 a set at the same time the Department was buying them for $200 a set. So they were effectively giving them away at

the same time that they were buying them, and they were short these suits. So that happens again in part because of systems, but also processes and human capital weigh into that.

I mean, we have looked at the supply chain management at organizations like Wal-Mart and found that the Department is years behind the Wal-Mart type of an analogy or situation. Although the Department is more complex than a Wal-Mart, some of those same technologies could help the Department have asset visibility throughout its supply chain. And, again, I believe they are attempting to implement many of those technologies, and there has been some successes; in other places, like the chemical and biological suits, they have not been successful.

Mr. SAXTON. Can we just kind of go across the board here now on this subject of this $20 billion? Comment on it; tell us what steps are being taken to fix the problems that Mr. Kutz and his GAO organization have identified.

Ms. BOUTELLE. Yes, sir. In regards to the $20 billion of savings that we could possibly reclaim if we improve our processes, I think that is one of the things that we are working towards. If we can build the architecture and then implement it and then have end-to-end business rules in place, that we are—we have the integration of the systems instead of the hand-offs that are going on in the current processes. We have had a lot of success in the Department, say, over the last 10 years. You know, if I look at our finance and accounting area, they have gone from about 320-some systems back in 1991 back to about 80 systems. They have gone from 27,000 employees to about 15,000. And they have done this through implementing electronic commerce and other process improvements. However, there is still a problem with the systems that we have and trying to integrate them. The more integration, the more electronic commerce that we get in place, the more that we can drive these costs down and improve the savings that we can pass on to be used in other parts of the Department to support the warfighting mission.

Mr. SAXTON. Now, Mr. Kutz, you have been involved in this for a while, and you have been studying on these same issues. What do you think of that?

Mr. KUTZ. Well, we think that the business enterprise architecture and the requisite management controls in place that are needed are essential to reforming. And that is where a lot of the—the savings from business systems modernization won't just come from the lower cost of the systems; it will come from the improved operations across the all the Department's business lines. So I would concur with what she said with respect to that.

Mr. SAXTON. And are we making—do you think we are making significant—no. Let me put it this way. Do you think we are making satisfactory progress?

Mr. KUTZ. Well, the progress has been more on paper than in reality. The reality of the situation is not that different than what it was several years ago, in our view. There has been some incremental progress, certain progress such as the purchase card program, the travel card program, and other more narrow types of programs that did not require major systems modernization have

been improved through management focus and improved human capital.

Mr. SAXTON. Okay. Thank you.

Dr. Myers, would you comment on this also? Give us your view of how good or bad we are doing in solving this problem of inefficiency and waste.

Dr. MYERS. Certainly. I think it is important to recognize that the 20 billion is not just—in fact, most of it is not in information technology costs.

Mr. SAXTON. I understand.

Dr. MYERS. We have a phrase we often use in the Department called paving cowpaths. And if we are not careful, we can build the IT to do the same old thing we have always done, only faster. That doesn't mean that it is the right thing.

There is a very good example in the medical logistics community where a few years back, instead of setting out to build a new system to manage the inventory in their warehouses, they figured out that they didn't even need the warehouses. So it is that kind of business transformation, business process reengineering, that must take place before we can get the kinds of savings that the Secretary mentioned.

Mr. SAXTON. Do you think we are making progress?

Dr. MYERS. Yes, I think we are. I think that is why the business enterprise architecture is so important, because it provides us for the first time with an enterprisewide blueprint for how to begin to make those transformations.

Mr. SAXTON. Now, you talk about enterprisewide blueprints. I think we all agree that that is where we want to go. It seems as though there is still a number too many stovepipe systems in the way of all that. Would you agree?

Dr. MYERS. In the short run, yes.

Mr. SAXTON. When do we find our way through this morass or what seems to be a morass of stovepipe systems? When do we see the light at the end of the cowpath?

Dr. MYERS. It is already beginning to happen. But I think what we are finding is we have a high-level architecture. We need to extend it down. There are, in fact, instances, many instances, where the services have unique business processes; so we need to be careful that we do not in some cases implement the wrong process. We need to make sure that, across the Department, we have correctly reengineered the right processes. And, frankly, that will probably take 2 to 3 years before we start seeing a significant reduction.

Mr. SAXTON. Mr. Kutz, would you comment?

Mr. KUTZ. They don't have exact milestones as to when the transformation will be completely done. I think there are some interim goals, and they are working to have more milestone-driven architectural metrics in place, and we certainly support that. We believe this needs to be measured as they go, and there needs to be—because it is a long-term project, there needs to be interim milestones that you and others can use to measure that they are indeed making the progress that they say.

Mr. SAXTON. Do we have milestones? Do we have interim goals? I guess that is what you are talking about, right?

Mr. KUTZ. Yes.

Ms. BOUTELLE. What we have is we have the transition plan that was delivered in April, May of last year, and that is very high level. As we work through the processes and we know where we are going, we first have to know what the "to be" is. Then it enables our business areas to figure out how to take the current systems that they have and when they will be able to shut them down so they can build that transition plan with better dates and better costs for us.

So, it is still high level. They are working toward figuring out where we are going with our transformed business process, and then they will be working to improve on the dates and the costs.

Mr. SAXTON. Okay. So we want to complete our big vision, right, our vision of where we want to be?

Ms. BOUTELLE. Yes.

Mr. SAXTON. Okay. And how much—let me ask you this: How much resistance do you get because people who have stovepipe systems like them don't want to change?

Ms. BOUTELLE. Umm.

Mr. SAXTON. Mr. Kutz is smiling. Now, make this a good answer.

Ms. BOUTELLE. Well, I mean, Greg and I talk a lot. You know, any time you try to implement a change of this magnitude, there are going to be the people who buy into it, and they see that this is the right thing for the Department, that this is the process that we have needed for years and years. But then there are always going to be those others that are comfortable where they are, and that they don't want to change, and they are hoping that this administration fades out and another administration comes in with a different set of rules.

And we are—those of us that believe in it strongly are hoping that we have the support through GAO, through Congress to help continue driving us where we need to go. Right now we have senior management support within the Secretaries, principal staff assistants, within the CIOs, within the service Secretaries, we have support. You drive down through that, I can't tell you that it is all there. It is a challenge every day to convince people that this is the right way to go.

Mr. SAXTON. Ms. Boutelle, to date the information that we have is that you have spent $257 million on the Business Management Modernization Program to solve some of these—to try to solve some of these problems. But your request for 2005 is 188 million more. Can you kind of help justify that request?

Ms. BOUTELLE. What we have put together so far—again, you know, if you stop and think about the Department and all the business areas that are in the Department, there is probably one of just about anything that you can think of that is in the corporate world. It is huge. And so if you take those processes, and then what we are trying to do is to build end-to-end process flows to where we—so that we don't take the output of one process and input it into another process. We are trying to build these end-to-end processes to where we identify the controls, the data that we need for management information. That is hard, and it is huge.

And so what we have done so far with the 200-some million dollars is we have built the high-level architecture that says here are the activities of the Department. We have identified the systems

that go with those. We have started some transition plans. We have captured certain data requirements. We have captured constraints, you know, whether they are laws or whatever the constraints are that are governing us. And now we are starting to work through doing the process reengineering. And we are taking that in an incremental approach as we tackle the hundreds, probably thousands, of business processes in the Department. And that is what we need the money for is to continue this effort to lay out the architecture in a way that we can implement it and make sure that we have one baseline with our rules in it, our requirements in it, and one interpretation, and that we can test against that architecture as we go through and implement these systems.

Mr. SAXTON. Thank you. That last question was a bit of a detour. I apologize to my colleagues.

I have one more question that I want to ask to the service representatives, and it is the same question that I asked Ms. Boutelle: How much of these problems are being caused by organizations or individuals that don't want to change systems because they like what they have got and don't want to become part of the broader program in your services? Mr. Winkler.

Mr. WINKLER. Mr. Chairman, thank you.

I think certainly there is a contributor to the problem along those lines of individuals who like doing things the way they used to do them, and it is about culture change. And we all know that change is hard.

The way we are wrestling with it in the Army is we have got an IT registry that tracks all the Army IT systems, warfighting, business, all of them. And we are doing portfolio management as we are supposed to. And we are dovetailing that in with the domain portfolio management of BMMP. That, combined with acquisition decision reviews and the JCETS process for requirements reviews. We are hitting these people at all angles that don't want to change, and that is how we are forcing the change in the Army. And it is working. It takes time. We are chipping away at it. I don't think we are on a linear progression; I think it is more of an exponential curve. But I think we are making it.

Mr. WENNERGREN. Cultural change is a very big issue, sir, And we see it across the organization. And two big things have changed in recent years that have helped us to deal with it, Because if you really look into it, the people at the local commands were trying to do the right thing. They were building innovative solutions that worked for them, but the Internet came along, and now we have the ability to do Web-based solutions that can be a solution for all. That and we moved ourselves to an enterprise network, NMCI. As we did that, we were able to get visibility into all the things that were being built at the local level. Then you can truly do portfolio management. Then the cultural changes should become easier because the leadership team can see what you have.

And so functional area by functional area we are working through. Hey, it was great that you wanted a small purchase solution at base A, but now you need to become part of the small purchase solution for the entire Department so we can share those best practices and not keep building it over and over again.

So cultural change is always something you have to deal with, because somebody was really proud of what they did. But we are working through it, sir, and the leadership team of the entire Department is behind this.

Mr. SAXTON. General Thomas, the Marines don't have a problem with cultural change, do they?

General THOMAS. Absolutely not, sir.

Mr. SAXTON. That is good.

General THOMAS. As I have testified many times before here, sir, the Marine Corps has adopted an enterprise approach, and I think at one of the other hearings I had made the statement that the less money you have, you know, you can't afford to be stupid. So we have been very smart in how we have expended our resources through this enterprise approach.

To give you one example, the Marine Corps has an integrated, fully integrated, manpower and pay system today, one that supports both our Active Force and our Reserve Force. So the question that was raised at the other end of the table during the beginning of this conversation is, you know, who is resistant to change?

I have got one—I have got one application that supports the Active and Reserve Force of over 200,000 folks. And so if we change, then that means I change my whole process.

So those are the kinds of situations you run into and the resistance that you run into, I suspect, if we don't do this smartly, which is why I made the comment in my opening statement that in the case of enterprise solution, one size does not necessarily fit all. And so we have got to be smart about that.

Some of the things that we have done, I have talked before, before the committee, about our savings. You know, we have turned over 4,200 marines through the operating forces through our activity-based costing efforts. We reduced our legacy applications from over 8,000 by 80 percent. And I can go on with a number of examples of where we are employing this enterprise approach, and we are employing it in the business arena as well, and we think we are doing it smartly.

Mr. SAXTON. Thank you.

Mr. Gilligan.

Mr. GILLIGAN. I think conventional wisdom of the experts is that this type of transformation, the problem really has three components. One is hardware and software; and it is about a third of the complexity. A second is process change. And a third is culture change.

Clearly within the Department of Defense culture is a big factor, both positive and negative, in trying to achieve the objectives that we have achieved. For example, within the Air Force the culture is that we are trying to support our warfighting mission, and our members treat that very sacrosanct. So anything that potentially gets in the way, they resist.

On the other hand, the military by its very nature, when we tell them, the leadership said this is what we want you to do, they do it, and they follow.

So we leverage both of those cultures. The scale of what we are trying to do, though, is candidly—it is unprecedented. And so trying to come up with processes that are common, trying to address

the cultural issues is something that is going to be complex. But I think, as was mentioned by the other witnesses, we have made progress. We have made progress in our individual services. And I think the initial progress at the DOD level gives us some hope that, in fact, we will be able to achieve this.

Mr. SAXTON. Thank you. Marty this is absolutely my last question. Back to Mr. Kutz.

Mr. KUTZ. Can I make one point on that though before you go on? There also are external factors involved in this with respect to—if you think about this, there are substantial number of contractors and jobs involved with all of these different systems. So when you pull the plug on a system, you are going to have one or more contractors that are involved to either go out of business or lose a significant chunk of business. That is a very important factor to consider in all of this modernization.

Mr. SAXTON. Okay. My question is related to this last series of questions. Is there anything that this panel should be thinking about doing to help facilitate the change that is maybe being held back by cultural factors?

Mr. KUTZ. Well, these people are change agents here, and they are some of the people who can actually make this happen, so I think that the statements that they have made and the kinds of views they have got are positive and the ones that they need to have.

Mr. SAXTON. When I said "this panel," I meant us.

Mr. KUTZ. Okay. You.

Mr. SAXTON. We are responsible too.

Mr. KUTZ. I thought you meant this panel here. Well, certainly think oversight hearings like the one today are very, very important, along with some of the support the Department might need as they try to downsize some of these systems, because you are going to get letters to members from these contractors or whoever is going to have their system eliminated that is going to create different issues. So it is an important factor.

Mr. SAXTON. Mr. Meehan thanks for your patience and——

Mr. MEEHAN. Thank you, Mr. Chairman.

Mr. SAXTON. And the time is yours.

Mr. MEEHAN. Thank you for that very thorough line of questioning. I can't imagine what question I could ask at this point. But I will give it a try.

Mr. Gilligan, the Air Force has acknowledged failed attempts to leverage commercial software in the late 1990's. What is the Air Force strategy to avoid similar problems as it modernizes now?

Mr. GILLIGAN. As I mentioned in my comments, it is true the Air Force in the late 1990's tried to field a number of commercial based systems. They were the early Enterprise Resource Planning (ERP), and in some cases, MRP, Manufacturing Resources Planning. And we found that the systems were not mature enough for our DOD scale problems and our processes. And so what we did was we decided to leverage the technology that was becoming available and mature, Web-based technology, Internet-based middle ware tools and capabilities. And what we have been able to do is leverage those tools to improve the performance of our legacy systems to deliver improved capabilities to the war fighters, I mentioned the ex-

ample of our supply client has now moved from a supply client that exists at each base to regional supply, freed up 500 people and a better supply system, using the legacy software. We now have a portal that provides access to many of our legacy systems, but now in a self-service mode.

And so what we have done is basically leveraged the technology, but it is also postured us to move to the business modernization program. We have moved our data into an enterprise data warehouse, such that when we go to transition to an ERP as the ERPs are now fielded, that will be a much easier step for us. And then I think somewhat in line with the chairman's questions, we think we are better postured to address the process and the culture change issues which candidly, we didn't do a very good job of in the past.

We have had some successes on small scale in some of the process and culture change that has gotten some confidence among the Air Force that this is something we can do and we are ready to take on now bigger challenges.

Mr. MEEHAN. Mr. Gilligan, as you may know, Massachusetts is home to the Electronic Systems Control at Hanscom Air Force base, which plays a critical role in the command, control, communications, computers and intelligence (C4I) and acquisition management and the value of those resulting systems to the warfighter. As the Air Force's CIO, I am sure that you understand better than anyone, how important it will be for the Department of Defense to continue to have access to this Nation's technological capability. As we move forward in the next BRAC round, it seems to me that it is imperative that those evaluating technical facilities like Hanscom can truly have a full understanding of their value.

Can you tell me what, if any, role that you will play in the BRAC process in your position as the Air Force CIO?

Mr. GILLIGAN. Yeah. My position really does not directly involve me in the BRAC process. And so what—my job is to articulate what are our needs and requirements, and I endorse your observations. Our Electronic Systems Center at Hanscom is an enormously valuable part of the Air Force as we move in to the netcentric operations and capabilities.

But with regard to my specific role, I am more an observer than one who is contributing.

Mr. MEEHAN. Well, I certainly will pass your perspective along to everyone who I speak to. Thank you very much and thank you to the panelists.

Mr. SAXTON. Ms. Davis.

Ms. DAVIS OF CALIFORNIA. Thank you. Thank you, Mr. Chairman. Thank you to all of you for your hard work. I wanted to focus for a second on NMCI, and I know there are a lot of challenges involved. We are still seeing them. Do you think some of those perhaps weren't anticipated by the Navy or by the contractor?

Mr. WENNERGREN. Yes, ma'am. Whenever you embark upon something this large there are a lot of unforeseen circumstances that will come to bear. And as we embarked upon an enterprise solution, that was one of the things we realized, that we had hundreds of local area networks, many unique circumstances, differing security levels, all of the things that made it very hard for us to

have this transformation process be successful. So that is why it has been so important us to. To actually move ourselves now to a place where we have over 300,000 seats that are on the network is showing the dividends of what actually happens as you move to a single enterprise network where your operational forces can actually do the collaboration sharing across the organization.

So yes, in the early days there was a lot of discovery that had to been done on both parts as we worked through what all do we own and how do we move it into a better process. And that is why NMCI has been such a good, I often refer to it as a forcing function, because it has given us that visibility into what we actually own, what was bought by the local commands with their local dollars, and now we have visibility into it; where were all the applications so we could begin to do these tremendous reductions in legacy systems, and also to do things like training of our military folks and better reconstitution and the kind of spillover and fillover we have now if a fire takes place in California, or a hurricane on the east coast, how we can maintain the network better.

Ms. DAVIS OF CALIFORNIA. Do we—I think I guess if there is a criticism at all that I have heard is that a lot of the folks who are on the front line, so to speak, who worked with the lot of these systems in the past, weren't really asked what they thought about the way things proceeded. Is that a fair criticism?

Mr. WENNERGREN. Well, it is one of those challenges that we talked about a little earlier about, you feel a great sense of ownership for the thing that you have built. And so on one level as a local command, perhaps you were happy because you had personal control over a network that you had. But what we ended up having was networks that couldn't talk to one another, couldn't share information, couldn't do the type of real-time network centric warfare that we talk about now. And so you were kind of happy and you were then kind of nervous when somebody said, well, another team is going to come over and take over. But we are seeing that change as people actually get in there and see what happens.

So there is some cultural resistance that takes place as people give up what they had and move to the new thing. But the great thing about the contract is it is a performance-based contract. And so there are fixed price receipts so the local command has the dollars to buy what they want, and then there are a number of service level agreements to actually measure performance. So everything from the refresh rate, the latency of the system to actual customers satisfaction.

Ms. DAVIS OF CALIFORNIA. Yeah. But what happens then if those service level agreements, performance agreements are not met? Do we start over with a different part of the system? I think Mr. Kutz mentioned something about some of the contracts falling out. How do we manage that? How do we handle that.

Mr. WENNERGREN. The big incentive of course for the EDS team is the intensive payment that they are able to achieve by living up to the service level agreements or improving them. So I think we have better measurement in place than we ever had before through the service level agreements. And the big thing I think is customer satisfaction, end users, at all those bases actually get to assess how it is going for them. And if they are not satisfied, it is apparent

to us right away. So we can take actions. The EDS team can take actions. And again, since they are entitled to incentive payments if they exceed performance, they are highly motivated to deliver a good service.

Ms. DAVIS OF CALIFORNIA. Where is the fallback though? I mean, what do we do if that doesn't work?

Mr. WENNERGREN. Well, the contract would have provisions that we have the base period and then we have an option year. So we could, we could make a decision in an option year or we could make a decision at the end of an option year. We could recompete the contract. But so far we are happy. The performance is good and the EDS team has done a great job of putting into play some state-of-the-art network operation centers, and you know you go talk to folks down on the waterfront and places like Norfolk who were on systems before where they were maybe decades before they could get new computers and having good gear and being able to use it is a good——

Ms. DAVIS OF CALIFORNIA. Anybody else wanting to comment on that?

General THOMAS. Well, I guess I am the only one that probably can comment on it since it is the Navy and Marine Corps team and so I will. And I agree with everything that Mr. Wennergren has said, you know, relative to single-integrated enterprise. But again, here is another example where you have, on the one hand, you know, the Navy side had multiple networks and the Marine Corps that had one network. So we had an integrated enterprise network before NMCI. But, you know, because we are the Department of Navy and we are a part of the Navy Marine Corps team, we are a participant in NMCI.

So again, that is why I say, you know, that one size doesn't necessarily always fit all. But you have got to be mindful of these kinds of issues as you go into these enterprise solutions. And I think you are absolutely correct. You have got to have a fallback position. And I think that if you take a look at how we have implemented NMCI and I can speak from the Marine Corps perspective, we have got, you know, a fallback position, you know, that will support our Marines and Forces as they deploy around the world.

Ms. DAVIS OF CALIFORNIA. Thank you. Thank you, Mr. Chairman. I had one or two just quick personal issues in question. One is how Navy Standard Integrated System (NSIP) is working for our Naval Reservists. One of the issues that we have heard is that there were problems around pay problems basically when we mobilize and demobilize the Reservists, and I am wondering what we are doing to raise the level of quality for our Reservists in terms of getting their pay when they need to have it.

Mr. WENNERGREN. Yes, ma'am. And the Naval Reservists, as part of the total force, workforce, are part of our total force set of systems, so it is a little different situation than what we discussed earlier about National Guardsmen.

The NSIP system is working for us and it has already resulted in some other legacy systems going away. So I think we are doing okay.

Ms. DAVIS OF CALIFORNIA. Okay. I hope so. Ms. Boutelle, just a quick question. Again, it is my understanding that for a number of

service members who have been traveling they are using the government travel credit card, and then they have to pay that off right away, and in some cases they don't always have the resources to do that.

We know they get reimbursed down the line, but my understanding is that their credit is being impacted because they can't always pay it off immediately. Is—are you aware of that or is that a—how are we dealing with that?

Ms. BOUTELLE. The way the credit card process works when they use their individual travel card, before they become delinquent it would be 60 days past due. So they would have to be traveling much longer than that to run into that situation. And I am sure there are examples of people out there who are at locations that perhaps do have difficulty filing their vouchers. But with fax machines and other types of devices, I would think it would be the exception for the most part. Travelers get back and they file their settlement vouchers and they are reimbursed within a week. So I haven't heard of anyone once they get it filed that it takes any longer than that to receive the funds.

Ms. DAVIS OF CALIFORNIA. Okay. Shall we pass along the concerns? Where should we send those to, because we have had some?

Mr. KUTZ. Representative, if I could mention, we have a study going right now to look at that issue and we have heard that there are some concerns about the timeliness of payments on that, and I can't speak to that now, but we are investigating that as we speak. So you know if your staff would like to contact me to discuss that, I would be happy to do that.

Ms. DAVIS OF CALIFORNIA. Okay. Great. We certainly don't want their credit impacted for situations beyond their control. Thank you. Appreciate it, Mr. Chairman.

Ms. BOUTELLE. Could I just add also that we do have the defense travel system that we are implementing and as that system gets rolled out, it is a Web-based system, so then wherever the traveler is at, then there will be greater chance of access to a system to go on-line and to process their settlement vouchers. So that is something, I think that we are doing that will help them. If you actually have travelers that are having problems right now, if you will refer them to me, I will certainly work with whichever service it is that is paying their settlement voucher to try to help them.

Ms. DAVIS OF CALIFORNIA. Thank you. Thank you to all of you.

Mr. SAXTON. Thank you, Mrs. Davis. Let me turn to a slightly different subject. Same subject, same book, different chapter, I guess. The Defense Integrated Military Human Resource System, more concisely known as DIMHRS, it is my understanding that the goal of DIMHRS is to be able to handle—to be the end-all system, if you will, to handle human resources IT issues. But it is also my understanding that DIMHRS will only meet a portion of the military services needs for personnel support.

I guess my question then is, if we adopt—as we adopt DIMHRS, how do each of you from the services believe that it will meet your needs in terms of a percentage of capability, and how will you make up the rest of that—how will you provide for the rest of the capability that you need to do the job?

Mr. WINKLER. Mr. Chairman, we recognize that DIMHRS is not going to do it all. But it is based on a commercial enterprise resource planning system, ERP, I believe that is people soft, and what we are doing in our personnel command human resources is planning a migration effort. It is called Enterprise Human Resources System (EHRS) that will roll our 265 Army personnel systems into that ERP environment, which will be a people-soft implementation to round out the DIMHRS application, if you will. So what we are doing for the functionality that DIMHRS doesn't have it is just using the same COTS product, and it will merge right into the DIMHRS schema.

Mr. SAXTON. Will you have to enhance your current capabilities in order to do this roll-in?

Mr. WINKLER. No, sir. We have to do some business process reengineering, and we will eliminate some of our legacy systems, probably a large percentage of them and we will take advantage of the modules that are available in that commercial application.

Mr. SAXTON. Do you foresee it—and we are going to go down the line here and ask this question, but do you see a time when DIMHRS will take over the entire process?

Mr. WINKLER. So that we in the service wouldn't have to do the migration for the—I really don't know. I don't know if that is necessary, but I guess the DIMHRS program officer or whoever is working on that, might be able to tell you better than I.

Mr. WENNERGREN. Sir, I think each of us will probably give you the same answer, that DIMHRS personnel pay module that comes on-line in the next couple of years will be a big help, and will help get rid of some legacy systems, but we will each have to maintain parts. So for us it is NSIPS, and we, like the Army and the rest of the table, are also taking advantage of the fact that DIMHRS is based on a commercial product, so we can leverage that commercial products suite for the other pieces of it that aren't in the initial deployment of DIMHRS. And our hope is to leverage as much of it as we can and as more modules were to come on line, we will take those too.

Mr. SAXTON. General Thomas, I bet you have a little different answer.

General THOMAS. Sir, I do. I have spent a great deal of time with my functional manager going through this specific system, and again, I think this probably provides a good example of where we have got to be smart. What we have done with our manpower and pay system, it has evolved into this integrated system over the course of about 25 years to be able to cover the entire Marine Corps. And so when the first phase of DIMHRS is delivered, if we had to accept that, we would end up taking, you know, two or three steps back. And what that means is that right now we have an automated award system. DIMHRS will not come with that.

We have a composite score capability that is automated that is a part of our current system, whereby Marines are getting promoted. DIMHRS will not support that. So what it involves, and I could give other examples. But what it would involve is for us to do a complete process re-engineering, how we promote, how we award recognition to name a few.

Mr. SAXTON. Thank you.

Mr. Gilligan.

Mr. GILLIGAN. Mr. Chairman, I think our situation is very similar. My understanding is what the DIMHRS program has done is chosen that subset of personnel functions which are most likely to be common across the Department. And we are going to get that as a standard package. We understand that. We have begun to plan for it. We have a program we call DIMHRS-plus, which would be the complementary set of capabilities that would address those functions to include our assignment process promotions et cetera, that will not be in the commercial package. Actually, we are in the position where today we do not want to delay DIMHRS. That is, if expanding DIMHRS would cause it to be delayed, we don't vote for that because we want to move forward with the more modern capability that integrates pay and personnel.

Today we don't have an integrated personnel and pay system in the Air Force and that is quite important. We have got the—Defense Finance & Accounting Service (DFAS) provides the pay system. We provide the personnel system and there are a lot of problems at the interface. So actually, what we are trying to do is ask DIMHRS for the Air Force to accelerate our implementation of DIMHRS. It was previously scheduled for 2007. We would like it to be in 2005 if possible, and then we will link it up with some complementary capabilities to be able to meet our needs.

Mr. SAXTON. Why all the enthusiasm for DIMHRS? And I am not trying be a smart guy here. But why all the enthusiasm for DIMHRS if the Marine Corps says it is a step backwards and we are spending millions of dollars on this system that will only do part of the job? There is obviously an answer because you are intelligent people, but it is an obvious question to me.

Mr. GILLIGAN. Let me start if I could. I think what you are hearing is DIMHRS has been delayed. It was originally to be delivered by now. We understand it is a tough problem. I think we are somewhat sympathetic with the scale that the problem, that the DIMHRS team is trying to take on. What I think you hear in the enthusiasm is we want some modernized capabilities. What I mentioned is the integrated personnel and pay is very important to us. And so the view is let's get on with DIMHRS and move forward. What we are not anxious to do in the Air Force is to see DIMHRS delayed any further.

General THOMAS. Just one other comment, sir. I didn't completely answer your question. Again, one of the other things that we will end up having to do if we were to implement DIMHRS from the Marine Corps perspective is to maintain the legacy system until some point in time until you know DIMHRS can evolve into what we have right now.

In addition to that, we would have to take and provide the manning and the additional dollars to maintain that legacy system. So I think that is another consideration.

Mr. WENNERGREN. I guess the thing that I would echo is that the capabilities that it does provide are helpful to us as I think you have heard from each of us. And so we want it fast and we want it to deliver the part—they promise that it is going to deliver well. Now, we talked a little bit earlier about one size doesn't always necessarily fit all. So there is some thought about if each of us are

working to standards and interoperabilities and information flows seamlessly, it doesn't necessarily have to do everything at once.

All right. It can actually do a part of the personnel pay solution for us and be helpful to us even though part of it is still work that we do ourselves because like the Marines we have a good award structure in place too, and it is all about how those fit together.

Mr. WINKLER. And Mr. Chairman, for the Army it gets back to what GAO said. We are trying to reduce the number of systems that we have. We are trying to collapse our applications and implement enterprise systems that take care of our entire Army enterprise. So we see this as efficient for us.

Mr. SAXTON. Mr. Kutz, what do you think?

Mr. KUTZ. I think DIMHRS is critical. The success of DIMHRS is something that is going to impact the troops, and I think that makes it of high importance to all of us. And so success of that is critical and the discussions of integration of personnel and pay is also critical. In the work we did that found all the errors, that was one of the causes of many of the errors was the lack of integration interface between the systems.

Mr. SAXTON. So you think DIMHRS is a step forward that gets us maybe half way to where we need to be? Is that fair?

Mr. KUTZ. I can't—I can only say that conceptually because we have not looked at—we are in the process I think for another study we are doing. But we are in the early process of looking. We have not looked to determine whether DIMHRS will meet all the needs that are necessary based on work we have done. But certainly the concept of an integrated personnel pay system will help the issues that we have seen.

Mr. SAXTON. Thank you. I have one more short set of questions. Or one more short question. Section 1004 of the fiscal year 2003 Defense Authorization Act stipulates that obligations in excess of a million dollars for financial system improvements be approved by DOD comptroller. Only if the improvement is necessary to, one, achieve the critical national security capability or address a critical requirement in an area such as security or safety; or two, prevent a significant adverse effect on a project that is needed to achieve an essential capability. The question is, what management structure and processes has the department put into place to have reasonable assurance that the Department is in compliance with the provisions of this law?

Ms. Boutelle would you take a crack at that?

Ms. BOUTELLE. Again, this is a tough one. There is a you know, 2,300-plus systems that we know of, and I think the Navy's example of when they implemented the Navy Marine Corps Internet the systems that just started showing up that they were unaware of. I anticipate that we will experience the same type of phenomena. But what we have done is we have taken the inventory and we have separated it by each of the domain owners for the transformation.

So we have broken it down by domain owner. They are responsible for reviewing any of the changes to these systems. We are not talking about sustaining them and keeping them running. Right now we are talking about any enhancements to them. So they are responsible for doing that. Once they have gone through a review

process then they have a package that they have to put together that has a business case. It is supposed to have a return on investment. And they submit that into comptroller for us to review and then make a decision through the business management systems integration office for recommendation to the comptroller to approve or not to approve.

Mr. SAXTON. Do you have a way to identify those systems that under this provision, should be submitted to the comptroller?

Ms. BOUTELLE. Do I have a way of knowing which ones should be submitted?

Mr. SAXTON. Obviously, the reason I am asking this is that we suspect that maybe some aren't.

Ms. BOUTELLE. And I think the answer is that if they weren't submitted, at this point in the learning curve or the process, I do not think that we would know. Whether they were having a change made or not, but I will tell you that we are working very, very close with the CIOs and with the domain owners to try to get our hands around this, and put a process in place and have multiple eyes looking at it as we try to determine whether or not they are changing the systems.

Mr. SAXTON. Mr. Kutz, any comments on this?

Mr. KUTZ. Yes.

Mr. SAXTON. We suspect that all the systems aren't being submitted. We don't know whether it is 10 percent that aren't or 40 percent that aren't or where we are.

Mr. KUTZ. We more than suspect. We know that some are not. And we don't know how many, but based on limited data provided to us we found almost $500 million of obligations that should have been subject to comptroller review that were not submitted. And I would agree with Ms. Boutelle. They do not have a process in place right now to identify all because we asked for that and we did not get it. We got limited data from the services, and based on that we identified nearly $500 million through December 2003 that should have been submitted but was not.

Mr. SAXTON. Can we——

Ms. BOUTELLE. I will say that again this is something that we have not done in the past. You know, this is where it goes back to each of the components having their funding and their systems and taking care of themselves as far as their mission requirements. And so now that we have moved to a domain structure, we are trying to put a discipline process in place. I think we are making progress. We have had the Deputy Secretary sign out a portfolio management directive that lays a framework so we are moving in the right direction. Again, it is just we are not there yet.

Mr. SAXTON. Well, it is a fairly simple concept. I am sure it looks simple, and I am sure it is harder to implement than it looks on the surface. But if I were a—if I had the authority someplace in DOD to go out and buy a system, and I knew the law said if it is a million dollars or more, under these circumstances it has to be submitted to the comptroller, I would feel a responsibility to submit it to the comptroller. I don't see what is so hard about that. And again, I am not trying to be a smart guy. I know you are trying to do a good job. But what is the problem?

Ms. BOUTELLE. Well, I think you kind of hit on it. If you knew that there was a responsibility to do it, you would submit it. I think we have put out the guidance that it is a requirement. I can't—I do not know the program managers that are not submitting their requirements, and I do not know why they are not. You know, I am kind of at a loss to explain that one. I don't know if the service CIOs can add to that or not.

Mr. SAXTON. Unfortunately we are running out of time. But would representative of the services submit an answer to that in writing for us?

Mr. WENNERGREN. Yes, sir.

Mr. SAXTON. That would be very helpful. And I think that everybody is well intended on this matter of compliance with this provision. But it is not getting done to the—at the level that we would like to see it being done. And so if you service representatives could address that, we would appreciate it. Thank you all for being here. We appreciate your participation. And we are going to move on to the next panel at this point.

So again, we appreciate your being here and we know you are trying hard to arrive at the goals that we collectively have with regard to this, with regard to these matters. Thank you.

I would like to welcome our next panel, Mr. Thomas Burlin, Partner U.S. Federal Industry and Global Government leader at IBM; Mr. Steve Peck, president, SAP Public Services; and Mr. Kent R. Schneider, president, Defense Enterprise Solutions, Northrop Grumman Information Systems. While we are making the change here, let me just say that we appreciate your participation as well and as soon as you are all in place, we will be ready for your opening statements. Thank you for being with us today.

Mr. SAXTON. Mr. Burlin we are ready for your testimony.

STATEMENT OF THOMAS BURLIN, U.S. FEDERAL INDUSTRY AND GLOBAL GOVERNMENT LEADER AT IBM

Mr. BURLIN. Yes, sir. Thank you. Mr. Chairman, I am, as you introduced, Tom Burlin, partner for the U.S. Federal Government account and the global government leader for IBM. We appreciate the opportunity and the committees invitation to talk about business modernization in the U.S. Department of Defense. As you are probably aware, IBM is the prime contractor for the Department of Defense's business modernization program, BMMP. And the team consists of IBM and eight subcontractors, four of which come from small business. The team believes it is particularly well suited to lead this DOD project.

Massive transformation that the Department is under taking has direct relationship to IBMs own modernization efforts over the past 10 years. DOD today is much like IBM 10 years ago, a vast silo-oriented organization with disparate information management systems, multiple databases software programs that don't talk to each other, with complex business processes that hinder rather than enhance organizational efficiency. Through a commitment by IBM's leadership to change, coupled with sound investment strategies, IBM is in a genuine transformation. We cut our costs, we embraced common processes and systems. Our $6 billion investment has re-

turned some $17 billion in savings and we have improved our time to market by 75 percent.

I might also note that we went from 128 CIOs to one. We began work on BMMP in April of 2002. We were asked to examine everything from strategic planning and budgeting to financial management accounting, logistics, procurement, human resources. Our starting point was building the business enterprise architecture or BEA. In layman's terms, a business architecture is a framework or model that represents an end-to-end view of an organization's business mission strategy and processes and how those elements link to its information technology strategy.

Using this framework, DOD will be able to make sure that IT investments in the future will work with current systems. It will help minimize costs, maximize investment. Ultimately it will help DOD to fulfill its mission to support our armed services, agencies and our Nation's fighting troops. Team IBM delivered the initial version of the business enterprise architecture May 1st of 2003 on schedule and under budget.

Working in collaboration with DOD, we intend to deliver future versions of the BAE in three successive increments with the overall goal of achieving a clean audit opinion in 2007. We believe we are on track to make this delivery. While we have encountered some challenges already, we are seeing measurable results that have positive impact on the Department's business process and capabilities. I have detailed these for the committee in my written testimony.

In closing, let me emphasize two points: First, any plan to modernize the DOD is evolutionary. It will be an ongoing process with constructive collaboration from the department, team IBM, the services and agencies. Second, any transformation requires a tops down approach. Senior management must demonstrate its commitment to the support for the initiative to succeed. We are pleased to have been selected to assist the Department in achieving its business transformation goals.

We are committed to deliver the best possible advice and products for the Department to support its goals of making our Armed Forces more agile and adaptive to any emerging threats. Mr. Chairman, members, thank you for this opportunity. Welcome any questions.

Mr. SAXTON. Thank you very much. Mr. Burlin.

[The prepared statement of Mr. Burlin can be found in the Appendix on page 401.]

Mr. SAXTON. Mr. Peck, welcome.

STATEMENT OF STEVE PECK, PRESIDENT, SAP PUBLIC SERVICES

Mr. PECK. Thank you, Chairman Saxton and members of the subcommittee. I am Steve Peck, president of SAP Public Services, and I appreciate the opportunity to appear before you today to share SAP's perspective on the business transformation efforts of the Department of Defense. For 32 years, SAP has built business applications software that is based on integrating business processes to help businesses run better. SAP's commitment to customer success and product quality has made SAP the clear worldwide

market leader in the business application software space and the third largest software company in the world overall.

We have nearly 20,000 customers and employ almost 30,000 people in 50 countries with over 5,000 people here in the United States. We develop highly scalable open standards business application software, and our specialty is partnering and aligning with our customers to help enterprises modernize and better achieve their business goals.

This is especially true for large complex entities. In fact, SAP is used by seven of the Fortune 10, including companies such as Microsoft, IBM, Exxon and Federal Express. And in the aerospace and defense industry, 23 of the top 25 corporations use our software. Successful modernization and transformation, can't rely just on the technology. It is accomplished by implementing change through a combination of people, processes and technology. And today I would like to talk about three real world examples.

First Raytheon. Raytheon has grown through the years both organically, and through acquiring highly disparate business operations. They implemented SAP as an overall common system. This provides a single operating picture and business process standards for their leaders and enables them to have one face to their customers. By using our solution, Raytheon now accesses information throughout their global operations and network of over 93,000 employees, and has realized significant savings and better competitive advantage.

The second one, I would like to highlight the Defense Logistics Agency's (DLA) Business Systems Modernization Program, which is modernizing financial management, order fulfillment, supply and demand planning, material management and procurement. As part of this effort, DLA reengineered its business practices adopting the commercial best practices embedded in SAP software. This comprehensive integrated system is in use today for thousands of items to supply—of supply and is on track to manage more than four million items when fielding is completed.

Business processes have been improved, organizations reshaped and the workforce has been retooled. This program is supporting the DLA mission today which includes military operations in Afghanistan and Iraq. Third, I would like to highlight the U.S. Army, which is using our software to help transform the Army Logistic Enterprise including their new global combat support system and the Logistics Modernization Program.

In the future, the Army will be using SAP software to support forward deployed forces and to create a logistic common operating picture to give joint commanders the ability to make decisions based on real-time information. This transformation combined with the use of innovative technologies such as mobile devices and radio frequency ID can help enable total asset visible from foxhole to factory, and is consistent with Secretary Rumsfeld's transformation objectives. We take great pride in the fact that all of our Federal customers have either succeeded or are on the road to success with their SAP implementations.

It is important to note that success doesn't come easily. But as you can see by our examples, it is worthwhile. To embark on a large modernization program and government we need to pay close

attention to the acquisition policies and program management strategies that support effective transformation, especially in light of fast moving technology advancements. From our viewpoint the critical issue for most large organizations, whether public or private, is mastering complexity while insuring integration and program momentum. Because of the investments technology companies like SAP have made, and the broader use of technology in the private and public sectors, government now has a unique opportunity to put this innovation to work and allow lessons learned to be quickly applied leading to shorter acquisition cycles and faster results.

We strongly recommend refining acquisition approaches and processes that focus on what must be done rather than how to do it. We believe this approach provides a framework for capitalizing on the best practices that have been embedded in the design of COTS products like SAP, and will allow the government to leverage the investments made to create these practices and achieve the desired outcomes. We understand that the end goal here is to help protect and defend our country by making sure that the Department of Defense has the tools to function efficiently and to make sure our war fighters have what they need.

We hope that our testimony has been helpful to you, Mr. Chairman, and members of the subcommittee. Thank you for the opportunity to appear this afternoon and this concludes my prepared remarks.

Mr. SAXTON. Thank you very much.

[The prepared statement of Mr. Peck can be found in the Appendix on page 410.]

Mr. SAXTON. Mr. Schneider, please.

STATEMENT OF KENT R. SCHNEIDER, PRESIDENT, DEFENSE ENTERPRISE SOLUTIONS, NORTHROP GRUMMAN INFORMATION SYSTEMS

Mr. SCHNEIDER. Mr. Chairman, thank you for the opportunity to come talk to you today about the Department of Defense Business transformation. We think at Northrop Grumman we are uniquely positioned to provide input on this issue because we are engaged in transformation across the Department of Defense including business systems. At Northrop Grumman, we believe that three concepts or themes underpin successful public domain business system modernization and transformation.

First, we believe DOD needs to take an enterprise view of defense transformation in order to achieve interoperability, scalability, agility and greater mobility of enterprise systems and architecture. And I would add in this regard that when we are talking about enterprise, it is useful to understand what enterprise we are talking about, whether we are talking about a military service or we are talking about DOD in general, because you will often get a different perspective depending on what you are talking about.

Second, we, the DOD and industry, need to reuse and reapply technologies, that already exist to the extent that we can. You have heard about the application of COTS today. We need to take proven best of breed technologies from commercial and government sectors

and adapt them to similar problems and possibly unrelated environments. Lower costs and certainly lower risk will result from such reapplication.

Third, we believe we need to find a balance between best commercial practices and DOD systems engineering experience and domain expertise. Now, you heard Mr. Gilligan say earlier that the Air Force had had great difficulty early on in applying commercial technologies. We have found that that risk can be reduced when domain experience is applied.

In DOD, the application of commercial solutions often can be a problem. This results from the unprecedented scale of defense operations the complex environment within which major defense systems are developed and introduced and unique government processes that are often anchored in public law and regulation. We have found that a partnership between commercially-oriented firms and defense integrators like Northrop Grumman offer proper balance bringing best commercial practice and the required military domain expertise. The statement I provided you offers the example of DIMHRS which you have heard plenty of today.

I won't go through that except to say that Northrop Grumman leads that effort and I would be happy to answer any questions that you might have. Thank you very much.

[The prepared statement of Mr. Schneider can be found in the Appendix on page 416.]

Mr. SAXTON. Thank you. Let me start with this. You have—your organizations have a different level of experience with IT business systems than perhaps our friends at the Pentagon have. Are there things that you could do if you were asked that would help with the transformation of the processes that are underway that you have heard described here earlier today which we all know there are—that we are not meeting the level of success that we would like to. Are there things that industry could do to be helpful if you were asked?

Mr. BURLIN. Mr. Chairman, I certainly believe that that would be possible. Whether we were asked—I believe we have been.

Mr. SAXTON. Maybe you have been asked.

Mr. BURLIN. I do believe we have been asked and I feel as though in the business modernization program, that is exactly what the Comptroller and the Secretary is asking of the team is to provide the experiences, not just the technology and the intellectual capital of the IT experiences, but the business experiences that we have as a group and certainly the experiences that IBM brought to the table in their transformation.

So I believe we have been asked. Hopefully, we have provided that counsel and will continue to provide that counsel.

Mr. PECK. Mr. Chairman, I think that along those lines, that one of the things that we can learn there is what have the biggest most complex entities across the globe done to modernize themselves in the 1990's and in 2000. And I think that when you look at balancing the right kind of oversight with the right kind of momentum and the direction that they have taken it is less about—the technology is important, but it is how they implemented the process and the change to achieve the desired results that are mandated by their share holders. And I think that there are some les-

sons learned there of the big, big complex of the Fortune 50 companies that we could probably look at, and then map up their program policies and procedures, their acquisition policies and procedures with how that was designed to make those programs successful.

Mr. PECK. And I think that a little more private-public collaboration from the very top and the very biggest and the most successful could help.

Mr. SCHNEIDER. Mr. Chairman, I absolutely agree. I think Mr. Burlin got it right when he says, we have been asked; and I think we have shared our expertise and our experience where we have been given the opportunity to do that.

I think if you go back to Mr. Gilligan's testimony when he talked about the three elements: technology, change management, and process improvement, I think we bring experience in all of those areas. I think we have been asked to share that. I think sometimes we haven't been asked to share it comprehensively.

I do agree with the point that Mr. Peck made with regard to learning from large-scale industry and, for that matter, from other governments.

What we do have to remember is that, as we go to modernize these enterprise systems at the DOD level, we are sometimes encountering scale that has never been experienced before. DIMHRS is a good example of that. The largest implementations of that type we have seen anywhere, whether government or in the Fortune 50, are in the hundreds of thousands of records. DIMHRS, in its first instantiation, will be 3.1 million records with the requirement to scale to 8 million. That is an order of magnitude larger than anything that has ever been done.

So I think what we need to do is bring together—and that was my point earlier—the best commercial practice, along with the experience in integrating large-scale government systems. And I think, if we work together in industry, we can bring that composite experience and expertise to bear.

Mr. SAXTON. When Mr. Burlin was giving his answer, I said, maybe I should have asked if DOD has asked you for this kind of suggestion. And I think common sense would probably say they have.

Have they asked on a large-scale, throughout other industries that have done integrated systems, for input from them as well?

Mr. SCHNEIDER. I think they have. And I think industry has responded to that, and not just in the IT area, but in defense transformation in general.

I think the difficult problem here—and it gets back to the point I made about there is more than one enterprise—is that often we are not talking to a single audience. If you talk to the service CIOs that you had here earlier, they talk about the enterprise in terms of their military system. When you talk to the DOD proponents, they talk to a larger set that includes the joint environment.

I am not sure they are always asking the same question or they are always asking—or getting the same answer. And they have to be clear in which enterprise and which problem they are trying to solve.

Mr. BURLIN. Sir, I might also add that, at least as this subcommitteeis questioning along IT investments, we are an IT company and therefore have a predominance of IT professionals in our company; and when you look at the Department of Defense, they would be a minority within that. Certainly as you look at the Department further, you would find almost every industry. So I believe they do work through other industries, whether it be the distribution industry or the transportation industry, to get commercial insight into how they are modernizing those processes.

To the extent that we, as IT professionals, support those industries, I believe we try to connect them with knowledgeable industry experts in that domain.

Mr. SAXTON. Here is another interesting question to contemplate—for me to contemplate anyway. Maybe you have some insight that can help me out.

It seems as though, as we transform IT, we get transformed to whatever point we happen to arrive at, and all of a sudden there is a need to transform that. Talk about that a little bit. Where do you see us going in the future with regard to future transformation?

Mr. BURLIN. Well, sir, we started our transformation out of necessity. We were a——

Mr. SAXTON. "we," IBM?

Mr. BURLIN. "We," IBM, yes, sir.

We were a company heading to default. So, in military terms, we had to fight immediately. We didn't have a lot of time to contemplate our response, and so we began a very—with a sense of urgency on that road. That would be about 1993, when Mr. Gerstner came on board to the company.

I would tell you, we are still transforming and, most recently, moving from a network-centric approach to an on-demand approach.

Mr. SAXTON. What does that mean?

Mr. BURLIN. Sir, what I heard today was, if we design systems and then we see large increases or decreases in demand on those systems, what do we do? I think the future of IT has to address that. That is a reality. It is a reality of business.

It is certainly a reality in the Department of Defense that there are going to be surges, that there will be changes; and I think the IT systems of the future have to address that. They have to be resilient, they have to be flexible, and you can't pay for the maximum requirement all the time.

So I think as we move from an e-business environment, from a Web environment, the next generation will be an on-demand environment, where you buy what you need when you need it.

So we feel we are still in that transformation.

Mr. SAXTON. Thank you.

Mr. PECK. Mr. Chairman, no doubt it is an evolution; and with the proper type of architectural standards and the right balance in how you can mobilize to get results, because momentum in a program is critical, early results are critical, then it becomes an evolution as you begin to enhance your processes and adopt and involve the technologies.

Most of the large companies are standardizing on a very common set of logistics and financial platforms. They are tuning their efficiency. They are looking to measure their effectiveness, because there is a balance between the two.

And then, as they look at ways to either adopt new technologies or new best practices, game-changing practices on how they look at their end-to-end logistics or how they measure their performance scorecarding, then they implement that on top of the backbone.

But having a common—common system, common source of the truth is critical in order to be a foundation for that evaluation—or that evolution.

Mr. SCHNEIDER. Mr. Chairman, I think your question accurately points to the fact that information technology is in constant evolution. And so as we build systems to satisfy the transformation needs of the Department of Defense or any other large enterprise, we have all pointed to the need to use commercially available systems whenever that will satisfy the requirement.

And I would go beyond that to say that we shouldn't modify those any more than we absolutely need to.

You heard mentioned several times the DIMHRS program. One of our objectives there is to, have at completion, less than 10 percent of that system comprised of custom code. The reason for that is that as technology evolves, and if we use an open modular architecture to build that system and we don't modify those pieces to the extent that they cannot evolve to the next generation of technology, we won't have to go back and build a new system. We will be able to refresh the technology in that system over time without rebuilding it, because we will have software that is compatible with the new pieces that are coming on board.

But if we go in and take that core software and modify it beyond recognition, the next release of that software will not be applicable to that solution because you would have to go back and do just as much modification to reapply it.

So I think one of the responsibilities we in industry have is to make sure that when we sell the Department of Defense or any other government agency a solution, we do it in a way that will be able to evolve with technology.

Mr. SAXTON. Mr. Peck, what is your largest industrial customer?

Mr. PECK. Well, I can name—one of them is sitting to my right here, in IBM. They are probably one of the largest, if not probably one of the top two or three, I would say in the world, on SAP. We have got the ExxonMobils of the world. I can't tell you for sure what the top is.

Mr. SAXTON. Let us stick with IBM. How long did it take you to implement SAP across IBM?

Mr. PECK. Tom, you may know that even better than I do.

Mr. BURLIN. I believe we started much the way that the Department of Defense has started, with an enterprise architecture review in about 1993. We spent about 3 years developing and substantiating that architecture.

I can't be exact. I can certainly reply back when we started the SAP implementation, but it would have been fairly early in that one of the first areas that we focused on was our supply chain and modernizing our supply chain. And we, through a process of eval-

uation, using the architecture that we put in place, settled on the SAP product as best meeting our requirements for portions of that solution.

So it would have been in the mid–1990's, sir, but I can get you an answer. And we probably completed that over about a 5-year period, I would say.

Mr. PECK. And typically what we see is that you start with an aggressive but attainable goal in how you implement, and you look at large entities for time horizons, anywhere between 18 and about 27 months on a first phase, on how you roll it out; and get measurable results there that kind of prove out the statement and create the momentum through the organization in the winds of change; and then roll out, you know, more function areas beyond that.

Some of our more moderate-sized companies can implement in periods of time of 6 months. So you have got to kind of balance the change on that.

Mr. SAXTON. How much customization of SAP products was required?

Mr. BURLIN. Within IBM, sir? We actually worked very closely with SAP and have a fairly standard implementation of the—we control the architecture through a central advisory committee, if you would. So there are, if you will, rights reserved to the enterprise for how a software product, in this case SAP, is implemented. And then there is the ability progressively within the individual lines of business to implement.

Largely, I would venture a guess that 80 to 90 percent of the process is standard probably on the outside edge of the enterprise, maybe 10 percent is modified to the specific needs.

Mr. SAXTON. Now, compared to the military, your company is a rather homogenous——

Mr. BURLIN. Actually, not, sir. Certainly, we are an IT company as an enterprise, so—as I made the point earlier. But we work in almost—we work in 17, 18 different industries. We do everything from building products as a manufacturer of products to consultancy and, you know, service delivery.

So we have a—rather diverse. And as we went into our modernization, contained in my testimony, we actually had literally hundreds of business processes that had to be consolidated.

Mr. SAXTON. This would be a tough question for you to answer, I suppose. But you say only 10 percent of your SAP products that you have implemented are customized?

Mr. BURLIN. Rather than 10 percent are customized, think of about 80 to 90 percent of the core processes—these are modules. If you think of the software as coming in modules, having functional capability, about 80 to 90 percent of those modules are used as designed and implemented.

Mr. SAXTON. Should that be a goal of DOD, to be 80 or 90 percent?

Mr. BURLIN. Certainly, the higher that you can drive that standardization, the more return you get out of the implementation of a cost product. I don't know that I could say unequivocally that 80 to 90 percent is correct. My experience is, we do gap-fit analysis early on, and the implementation across DOD projects tends to run

in the 60 to 70 percent. So I think improving that and focusing to improve that fit would be an objective.

Mr. PECK. One of the secrets to success in all of our large entities, especially in recent times, has been this view of not having customization; SAPs designed, as Mr. Burlin knows, to be highly configurable so that it is not truly customizing any code, but to be able to be configurated so that it can meet your business needs.

But, in general, when you are looking at business process change and adapting best practices, it is important that you have the right governance in place to say that we are going to adapt to the best practice delivered unless it is either a matter of law or just a unique process that can't be changed.

And that is kind of a critical component, to have the right governance to do so, because sometimes, quite frankly, people want to implement something because they have been doing it for 30 years. Nobody can remember why they were doing it that way.

So it is better to adapt to best practices, keep it as vanilla as possible, have a configurable, scalable system that can work, and then make sure that if they are going to actually get in and change the software, it is done for a very specific reason and with the right kind of governance in place.

Mr. SAXTON. Mr. Schneider, what is the largest system integration that Northrop Grumman has done for the government?

Mr. SCHNEIDER. Well, we have—probably the largest one we have ever done is the Joint Stars effort, which is an electronics platform built on a 707 platform to do aerial surveillance and to download data from an airborne platform to ground stations and be distributed to ground commanders.

In the IT arena, I would say it is probably the global command and control system.

On the business side, probably the DIMHRS effort that is under way right now.

Mr. SAXTON. It sounds like DIMHRS is highly customized. Not necessarily by Northrop Grumman, but DIMHRS is being supplemented by legacy systems which are custom systems, and DIMHRS is providing—I am not sure how to characterize it because I am certainly not an expert in this, but I hear that DIMHRS provides something around maybe less than 50 percent of the total capability that is necessary.

Is that——

Mr. SCHNEIDER. Well, I am not sure that is clear, Mr. Chairman. Part of the problem has been in the government consolidating requirements from the military services and the joint environment. We believe that DIMHRS has the potential to satisfy a much higher percentage than that of the total requirement. We also believe that where the services do gap analysis against the current architecture and express the needs for additional functionality to the Joint Program Office that that can be rolled into the core architecture and probably done more cost effectively than to develop supplemental systems. And we have suggested that approach to the military services as well as to the Joint Program Office.

To get back to your question about how customized it is, it is in fact not customized very much at all. It is built on a PeopleSoft platform. We did the kind of gap-fit analysis that Mr. Burlin was

discussing. We were able to get out of PeopleSoft about 70 percent of the functionality that was required.

We are actually using IBM components, database and middleware to close that gap to over 90 percent, so that we believe that less than 10 percent of the system will ultimately be custom.

I think one of the important things to remember about DIMHRS is that it not only addresses some of the issues that you heard earlier with regard to bringing pay and HR into a single system—and it is that gap that has caused a lot of those failures in paying people properly and so forth—it also brings active, Reserve and National Guard, as well as currently serving and retired, into a single system. But it also brings all the military services into a single system so that a joint commander, as an example, can get readiness data and a complete personnel profile on an entire joint task force, as an example. Or, even a military service will be able to get readiness data and a personnel profile of their entire command, which they can't get today from the HR and payroll systems that they have.

There is one other thing I would like to respond to in your question with regard to the number of legacy systems.

DIMHRS will replace about 79 systems that exist today. But in a field of about 200 systems that are out there that touch on HR and pay—they are not HR and pay systems, but they touch on it from the standpoint of providing input or output—so with a successful implementation of DIMHRS, we will eliminate those 79 legacy systems that it replaces.

But we do have the integration task of being able to talk to over 100 systems that will remain in the inventory as they presently exist. Now, it may be possible that, as we evolve the system, we will find ways to replace some of those as well.

Mr. SAXTON. Well, thank you.

I have no further questions at this time, unless any of you have something you are just burning to tell us. Thank you for being here. This has been a great exchange, and we appreciate your participation in this hearing.

Thank you.

[Whereupon, at 3:35 p.m., the subcommittee was adjourned.]

APPENDIX

MARCH 31, 2004

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 31, 2004

Statement of Chairman Jim Saxton
Subcommittee on Terrorism, Unconventional Threats and Capabilities

Subcommittee Hearing

"Department of Defense Business Transformation

March 31, 2004

Good afternoon ladies and gentlemen. The Subcommittee on Terrorism, Unconventional Threats and Capabilities meets this afternoon to learn more about how the Department of Defense is modernizing its business processes and practices. Essentially, how are DOD Business modernization efforts progressing?

The Department's information technology (IT) request for fiscal year 2005 is $28.7 billion and is intended to support both on-going operating requirements and programs in development. The subcommittee is mindful that while these funds may support many important IT systems, the Department continues to spend money to update legacy systems that the new systems will soon replace. It is the subcommittee's concern that these dollars are not being applied to business and warfighting programs, especially when our soldiers, sailors, Marines, airmen, and pilots are conducting military operations around the globe.

As one of the world's largest and most intricate organizations, no one doubts that running day-to-day business operations at the Department is challenging. With over $1 trillion in assets, nearly $1.6 trillion in liabilities, over 3.3 million military and civilian personnel, and disbursements of over $416 billion in fiscal year 2003, it is critical that the Department exercise effective management over its business operations. That is why we are here today. We are interested to learn what DOD is doing to bring its numerous financial management and business information technology systems into streamlined processes.

Many major commercial businesses have undergone significant business transformations in the past decade in order to stay profitable. Using the industry model, DOD would be wise to leverage such commercial best practices to improve its own business practices. Implementing an enterprise architecture, using performance metrics to measure new system developments, and breaking cultural barriers and parochial interests are a few examples of such practices.

The subcommittee remains committed to ensuring that resources are properly allocated to IT systems that fit into a department-wide enterprise architecture. However, we remain concerned that the Department's business system implementers are ignoring the law and the Department's leadership by continuing to develop stovepipe systems that do not conform to a DOD enterprise architecture. It appears there is wide spread

disregard for the law that requires procurement officials to obtain the Comptroller's permission before purchasing IT equipment and services costing more than $1 million. Some IT and acquisition officials apparently believe it is easier to ask for forgiveness than to abide by the law and ask for permission first. These and other fundamental issues must be addressed as the Department handles day-to-day business functions to support military operations around the world.

Today, we are pleased to have two panels testifying on business transformation:

Panel One from the Government:

- Mr. Gregory D. Kutz
 Director, Financial Management and Assurance
 General Accounting Office

- Ms. JoAnn Boutelle
 Deputy Chief Financial Officer
 Department of Defense

- Dr. Margaret E. Myers
 Principal Director for the Deputy Chief Information Officer
 Department of Defense

- Gary L. Winkler
 Director, Enterprise Integration, CIO/G-6
 Department of the Army

- Mr. David M. Wennergren
 Chief Information Officer
 Department of the Navy

- Mr. John M. Gilligan
 Chief Information Officer
 Department of the Air Force

- Brigadier General John R. Thomas
 Director C4/Chief Information Officer
 United States Marine Corps

Panel Two From Industry:

- Mr. Thomas Burlin,
 Partner, US Federal Industry and Global Government Leader
 IBM

- Mr. Steve Peck

President, SAP Public Services
SAP

- Mr. Kent R. Schneider
 President, Defense Enterprise Solutions
 Northrop Grumman Information Technology

Welcome, Ladies and Gentlemen. I look forward to hearing your testimony.

United States General Accounting Office

GAO

Testimony

Before the Subcommittee on Terrorism, Unconventional Threats and Capabilities, Committee on Armed Services, U.S. House of Representatives

For Release on Delivery
Expected at time 1:30 p.m.
Wednesday, March 31, 2004

DEPARTMENT OF DEFENSE

Further Actions Needed to Establish and Implement a Framework for Successful Business Transformation

Statement of Gregory D. Kutz
Director, Financial Management and Assurance

Randolph C. Hite
Director, Information Technology Architecture and Systems



GAO-04-626T

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Highlights

Highlights of GAO-04-626T, a testimony before the Subcommittee on Terrorism, Unconventional Threats and Capabilities, Committee on Armed Services, U.S. House of Representatives

Why GAO Did This Study

GAO has issued several reports pertaining to the Department of Defense's (DOD) architecture and systems modernization efforts which revealed that many of the underlying conditions that contributed to the failure of prior DOD efforts to improve its business systems remain fundamentally unchanged. The Subcommittee asked GAO to provide its perspectives on (1) the impact long-standing financial and related business weaknesses continue to have on DOD, (2) the underlying causes of DOD business transformation challenges, and (3) DOD business transformation efforts. In addition, GAO reiterates the key elements to successful reform: (1) an integrated business transformation strategy, (2) sustained leadership and resource control, (3) clear lines of responsibility and accountability, (4) results-oriented performance, (5) appropriate incentives and consequences, (6) an enterprise architecture to guide reform efforts, and (7) effective monitoring and oversight. GAO also offers two suggestions for legislative consideration that are intended to improve the likelihood of meaningful, broad-based financial management and related business reform at DOD.

www.gao.gov/cgi-bin/getrpt?GAO-04-626T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Gregory Kutz at (202) 512-9095 or (kutzg@gao.gov) or Randolph Hite, (202) 512-3439.

March 31, 2004

DEPARTMENT OF DEFENSE

Further Actions Needed to Establish and Implement a Framework for Successful Business Transformation

What GAO Found

DOD's senior civilian and military leaders are committed to transforming the department and improving its business operations and have taken positive steps to begin this effort. However, overhauling the financial management and related business operations of one of the largest and most complex organizations in the world represents a huge management challenge. Six DOD program areas are on GAO's "high risk" list, and the department shares responsibility for three other governmentwide high-risk areas. DOD's substantial financial and business management weaknesses adversely affect not only its ability to produce auditable financial information, but also to provide timely, reliable information for management and Congress to use in making informed decisions. Further, the lack of adequate transparency and appropriate accountability across all of DOD's major business areas results in billions of dollars in annual wasted resources in a time of increasing fiscal constraint.

Impact of Weaknesses in Human Capital Management, Internal Control, and Systems

Business area affected	Problem identified
Military pay	Ninety-four percent of mobilized Army National Guard soldiers GAO investigated had pay problems. These problems distracted soldiers from their missions, imposed financial hardships on their families, and had a negative impact on retention.
Logistics	Asset visibility and other logistical support problems hampered mission readiness during Operation Iraqi Freedom, including cannibalization of vehicles for parts and duplication of requisitions.
Travel	Seventy-two percent of the over 68,000 premium class airline tickets DOD purchased for fiscal years 2001 and 2002 were not properly authorized and 73 percent were not properly justified.
Property	New JSLIST chem-bio suits sold on the Internet for $3 while at the same time DOD was buying them for over $200. Further, thousands of defective suits, declared excess by DOD, were improperly issued to local law enforcement agencies—which are likely to be first responders in case of a terrorist attack.
Contract payments	Some DOD contractors were abusing the federal tax system, with little or no consequence. As of September 2003, DOD had collected only $687,000 of unpaid federal taxes through a mandated levy program. GAO estimated that at least $100 million could be collected annually through effective implementation of the levy on DOD contract payments.

Source: GAO

Four underlying causes impede reform: (1) lack of sustained leadership, (2) cultural resistance to change, (3) lack of meaningful metrics and ongoing monitoring, and (4) inadequate incentives and accountability mechanisms. To address these issues, GAO reiterates the keys to successful business transformation and offers two suggestions for legislative action. First GAO suggests that a senior management position be established to spearhead DOD-wide business transformation efforts. Second, GAO proposes that the leaders of DOD's functional areas, referred to as departmentwide domains, receive and control the funding for system investments, as opposed to the military services. Domain leaders would be responsible for managing business system and process reform efforts within their business areas and would be accountable to the new senior management official for ensuring their efforts comply with DOD's business enterprise architecture.

Mr. Chairman and Members of the Subcommittee:

It is a pleasure to be here to discuss key aspects of business transformation efforts at the Department of Defense (DOD). At the outset, we would like to thank the Subcommittee for having this hearing and acknowledge the important role hearings such as this one serve. The involvement of this Subcommittee is critical to ultimately assuring public confidence in DOD as a steward that is accountable for its finances. DOD's substantial long-standing business management systems and related problems adversely affect the economy, effectiveness, and efficiency of its operations, and have resulted in a lack of adequate transparency and appropriate accountability across all major business areas. As a result, DOD does not have timely, reliable information for management to use in making informed decisions. Further, as our reports continue to show, these problems result in significant fraud, waste, and abuse and hinder DOD's attempts to develop world-class operations and activities to support its forces. Of the 25 areas on GAO's governmentwide "high risk" list, 6 are DOD program areas, and the department shares responsibility for 3 other high-risk areas that are governmentwide in scope.[1] The problems we continue to identify relate to human capital challenges, ineffective internal control and processes, and duplicative and stovepiped business systems. The seriousness of DOD's business management weaknesses underscores the importance of no longer condoning "status quo" business operations at DOD.

Over the last 3 years, DOD has taken action to begin addressing a number of these challenges as part of its business transformation effort. Business transformation has been a priority of Secretary Rumsfeld. For example, DOD has been granted additional human capital flexibilities and is in the process of developing a new personnel management system for its civilian employees. In addition, through its Business Management Modernization Program (BMMP), DOD is continuing its efforts to develop and implement a business enterprise architecture and establish effective management and control over its business system modernization investments. To date, however, the underlying operational conditions remain fundamentally unchanged and

[1] U.S. General Accounting Office, *High-Risk Series: An Update,* GAO-03-119 (Washington, D.C.: January 2003). The nine interrelated high-risk areas that represent the greatest challenge to DOD's development of world-class business operations to support its forces are: contract management, financial management, human capital management, information security, support infrastructure management, inventory management, real property,

tangible evidence of improvements in DOD business operations remains limited to specific business process areas, such as DOD's purchase card program, where improvements have generally resulted from increased management focus and better internal control rather than from major modifications to automated systems. It is important to note that some of the key elements we highlight in this testimony as necessary for successful business transformation were critical to the success of several of the interim initiatives that we will discuss today.

Because DOD is one of the largest and most complex organizations in the world, overhauling its business operations represents a huge management challenge. In fiscal year 2003, DOD reported that its operations involved over $1 trillion in assets, nearly $1.6 trillion in liabilities, approximately 3.3 million military and civilian personnel, and disbursements of over $416 billion. Moreover, execution of DOD operations spans a wide range of defense organizations, including the military services and their respective major commands and functional activities, numerous large defense agencies and field activities, and various combatant and joint operational commands that are responsible for military operations for specific geographic regions or theaters of operations. To execute these military operations, the department performs an assortment of interrelated and interdependent business process areas, including logistics management, procurement, healthcare management, and financial management. Secretary Rumsfeld has estimated that successful improvements to DOD's business operations could save the department 5 percent of its budget a year. Using DOD's reported fiscal year 2004 budget authority amounts, this percentage would equate to approximately $22 billion a year in savings.

Over the last 3 years, we have made a series of recommendations to DOD and suggestions for legislative changes that provide a framework for effectively addressing the challenges DOD faces in transforming its financial management and related business operations and systems and offered several key elements necessary for reform to succeed.[2] This framework recognizes the

systems modernization, and weapon systems acquisition.

[2] U.S. General Accounting Office, *DOD Financial Management: Integrated Approach, Accountability, Transparency, and Incentives Are Keys to Effective Reform*, GAO-02-497T (Washington, D.C.: Mar. 6, 2002), U.S. General Accounting Office, *Information Technology: Architecture Needed to Guide Modernization of DOD's Financial Operations*, GAO-01-525 (Washington, D.C.: May 17, 2001), U.S. General Accounting Office, *DOD Business Systems Modernization: Improvements to Enterprise Architecture Development and Implementation Efforts Needed*, GAO-03-458 (Washington, D.C.: Feb. 28, 2003), U.S. General Accounting Office, *DOD Business Systems Modernization: Continued Investment in Key Accounting Systems Needs to be Justified*, GAO-03-465

complexity of the challenge and the long-term nature of overcoming it. Moreover, it recognizes the underlying causes of the challenge, such as lack of sustained leadership, cultural resistance to change, parochialism, and stovepiped operations, that impeded the success of previous administrations in addressing DOD's problems that continue today. DOD has agreed with our recommendations and launched efforts intended to implement them, but progress has been slow. If DOD is unable to address these underlying causes that have resulted in the failure of previous broad-based reform efforts, improvements will remain marginal, confined to narrowly defined business process areas and incremental improvements in human capital policies, business processes, internal control systems, and information technologies.

Today, we will provide our perspectives on (1) the impact that long-standing financial management and related business process weaknesses continue to have on DOD, (2) underlying causes that have impeded the success of prior efforts, (3) keys to successful reform, and (4) DOD's business transformation efforts. In addition, we will offer two suggestions for legislative consideration, which we believe will provide the sustained top-level leadership and accountability necessary for the business transformation effort to succeed. Our statement is based on previous GAO reports as well as on our review of the work of other DOD auditors and recent DOD reports and studies.

Impact of Financial Management and Related Business Process Weaknesses

For several years we have reported that DOD faces a range of financial management and related business process challenges that are complex, long-standing, pervasive, and deeply rooted in virtually all business operations throughout the department. As the Comptroller General recently testified and as discussed in our latest financial audit report,[3] DOD's financial management

(Washington, D.C.: March 28, 2003) and *DOD Business Systems Modernization: Longstanding Management and Oversight Weaknesses Continue to Put Investments at Risk*, GAO-03-553T (Washington, D.C.: Mar. 31, 2003), U.S. General Accounting Office, *Business Systems Modernization: Summary of GAO's Assessment of the Department of Defense's Initial Business Enterprise Architecture*, GAO-03-877R (Washington, D.C.: July 7, 2003), and U.S. General Accounting Office, *DOD Business Systems Modernization: Important Progress Made to Develop Business Enterprise Architecture, but Much Work Remains*, GAO-03-1018 (Washington, D.C.: Sept. 19, 2003).

[3] U.S. General Accounting Office, *Fiscal Year 2003 U.S. Government Financial Statements: Sustained Improvement in Federal Financial Management Is Crucial to Addressing Our Nation's Future Fiscal Challenges*, GAO-04-477T

deficiencies, taken together, continue to represent the single largest obstacle to achieving an unqualified opinion on the U.S. government's consolidated financial statements. To date, none of the military services has passed the test of an independent financial audit because of pervasive weaknesses in internal control and processes and fundamentally flawed business systems.

In identifying improved financial performance as one of its five governmentwide initiatives, the President's Management Agenda recognized that obtaining a clean (unqualified) financial audit opinion is a basic prescription for any well-managed organization. At the same time, it recognized that without sound internal control and accurate and timely financial and performance information, it is not possible to accomplish the President's agenda and secure the best performance and highest measure of accountability for the American people. The Joint Financial Management Improvement Program (JFMIP)[4] principals have defined certain measures, in addition to receiving an unqualified financial statement audit opinion, for achieving financial management success. These additional measures include (1) being able to routinely provide timely, accurate, and useful financial and performance information, (2) having no material internal control weaknesses or material noncompliance with laws and regulations, and (3) meeting the requirements of the Federal Financial Management Improvement Act of 1996 (FFMIA).[5] Unfortunately, DOD does not meet any of these conditions. For example, for fiscal year 2003, the DOD Inspector General (DOD IG) issued a disclaimer of opinion on DOD's financial statements, citing 11 material weaknesses in internal control and noncompliance with FFMIA requirements.

Recent audits and investigations by GAO and DOD auditors continue to confirm the existence of pervasive weaknesses in DOD's financial management and related business processes and systems. These problems have (1) resulted in a lack of reliable information needed to make

(Washington, D.C.: Mar. 3, 2004) and our report contained in the U.S. Department of the Treasury, *Financial Report of the United States Government* (Washington, D.C.: Feb. 27, 2004).

[4] JFMIP is a joint undertaking of the Office of Management and Budget, GAO, the Department of Treasury, and the Office of Personnel Management, working in cooperation with each other and with operating agencies to improve financial management practices throughout the government.

[5] FFMIA, Pub. L. No. 104-208, Div. A., title VIII, 110 Stat. 3009-389—3009-393, Sept. 30, 1996, requires the 23 major departments and agencies covered by the Chief Financial Officers Act of 1990, Pub. L. No. 101-576, 104 Stat. 2838, Nov. 15, 1990 (as amended), to implement and maintain financial management systems that comply substantially with (1) federal financial management systems requirements, (2) applicable federal accounting standards, and (3) *U.S. Standard General Ledger (SGL)* at the transaction level.

sound decisions and report on the status of DOD activities, including accountability of assets, through financial and other reports to Congress and DOD decision makers, (2) hindered its operational efficiency, (3) adversely affected mission performance, and (4) left the department vulnerable to fraud, waste, and abuse. For example,

- 450 of the 481 mobilized Army National Guard soldiers from six GAO case study Special Forces and Military Police units[6] had at least one pay problem associated with their mobilization. DOD's inability to provide timely and accurate payments to these soldiers, many of whom risked their lives in recent Iraq or Afghanistan missions, distracted them from their missions, imposed financial hardships on the soldiers and their families, and has had a negative impact on retention. (GAO-04-89, Nov. 13, 2003)

- DOD incurred substantial logistical support problems as a result of weak distribution and accountability processes and controls over supplies and equipment shipments in support of Operation Iraqi Freedom activities, similar to those encountered during the prior gulf war. These weaknesses resulted in (1) supply shortages, (2) backlogs of materials delivered in theater but not delivered to the requesting activity, (3) a discrepancy of $1.2 billion between the amount of materiel shipped and that acknowledged by the activity as received, (4) cannibalization of vehicles, and (5) duplicate supply requisitions. (GAO-04-305R, Dec. 18, 2003)

- Inadequate asset visibility and accountability resulted in DOD selling new Joint Service Lightweight Integrated Suit Technology (JSLIST)—the current chemical and biological protective garment used by our military forces—on the internet for $3 each (coat and trousers) while at the same time buying them for over $200 each. DOD has acknowledged that these garments should have been restricted to DOD use only and

[6] The six case study units reviewed include the Colorado B Company, Virginia B Company, West Virginia C Company, Mississippi 114th Military Police Company, California 49th Military Police Headquarters and Headquarters Detachment, and the Maryland 200th Military Police Company. In addition, our limited review of pay experiences of soldiers in the Colorado Army Guard's 220th Military Police Company, who recently returned from Iraq, indicated that some of the same types of pay problems that we found in our case studies had also affected them.

therefore should not have been available to the public. (GAO-02-873T, June 25, 2002)

- Inadequate asset accountability also resulted in DOD's inability to locate and remove over 250,000 defective Battle Dress Overgarments (BDOs)—the predecessor of JSLIST—from its inventory. Subsequently, we found that DOD had sold many of these defective suits to the public, including 379 that we purchased in an undercover operation. In addition, DOD may have issued over 4,700 of the defective BDO suits to local law enforcement agencies. Although local law enforcement agencies are most likely to be the first responders to a terrorist attack, DOD failed to inform these agencies that using these BDO suits could result in death or serious injury. (GAO-04-15NI, Nov. 19, 2003)

- Tens of millions of dollars are not being collected each year by military treatment facilities from third-party insurers because key information required to effectively bill and collect from third-party insurers is often not properly collected, recorded, or used by the military treatment facilities. (GAO-04-322R, Feb. 20, 2004)

- Our analysis of data on more than 50,000 maintenance work orders opened during the deployments of six battle groups indicated that about 29,000 orders (58 percent) could not be completed because the needed repair parts were not available on board ship. This condition was a result of inaccurate ship configuration records and incomplete, outdated, or erroneous historical parts demand data. Such problems not only have a detrimental impact on mission readiness, they may also increase operational costs due to delays in repairing equipment and holding unneeded spare parts inventory. (GAO-03-887, Aug. 29, 2003)

- DOD sold excess biological laboratory equipment, including a biological safety cabinet, a bacteriological incubator, a centrifuge, and other items that could be used to produce biological warfare agents. Using a fictitious company and fictitious individual identities, we were able to purchase a large number of new and usable

equipment items over the Internet from DOD. Although the production of biological warfare agents requires a high degree of expertise, the ease with which these items were obtained through public sales increases the risk that terrorists could obtain and use them to produce biological agents that could be used against the United States. (GAO-04-81TNI, Oct. 7, 2003)

- Based on statistical sampling, we estimated that 72 percent of the over 68,000 premium class airline tickets DOD purchased for fiscal years 2001 and 2002 was not properly authorized and that 73 percent was not properly justified. During fiscal years 2001 and 2002, DOD spent almost $124 million on premium class tickets that included at least one leg in premium class—usually business class. Because each premium class ticket cost the government up to thousands of dollars more than a coach class ticket, unauthorized premium class travel resulted in millions of dollars of unnecessary costs being incurred annually. (GAO-04-229T, Nov. 6, 2003)

- Some DOD contractors have been abusing the federal tax system with little or no consequence, and DOD is not collecting as much in unpaid taxes as it could. Under the Debt Collection Improvement Act of 1996, DOD is responsible—working with the Treasury Department—for offsetting payments made to contractors to collect funds owed, such as unpaid federal taxes. However, we found that DOD had collected only $687,000 of unpaid taxes as of September 2003. We estimated that at least $100 million could be collected annually from DOD contractors through effective implementation of levy and debt collection programs. (GAO-04-95, Feb. 12, 2004)

- Our review of fiscal year 2002 data revealed that about $1 of every $4 in contract payment transactions in DOD's Mechanization of Contract Administration Services (MOCAS) system was for adjustments to previously recorded payments—$49 billion of adjustments out of $198 billion in disbursement, collection, and adjustment transactions. According to DOD, the cost of researching and making adjustments to

accounting records was about $34 million in fiscal year 2002, primarily to pay hundreds of DOD and contractor staff. (GAO-03-727, Aug. 8, 2003)

- DOD's information technology (IT) budget submission to Congress for fiscal year 2004 contained material inconsistencies, inaccuracies, or omissions that limited its reliability. For example, we identified discrepancies totaling about $1.6 billion between two primary parts of the submission—the IT budget summary report and the detailed Capital Investments Reports on each IT initiative. These problems were largely attributable to insufficient management attention and limitations in departmental policies and procedures, such as guidance in DOD's Financial Management Regulation, and to shortcomings in systems that support budget-related activities. (GAO-04-115, Dec. 19, 2003)

- Since the mid 1980s, we have reported that DOD uses overly optimistic planning assumptions to estimate its annual budget request. These same assumptions are reflected in its Future Years Defense Program, which reports projected spending for the current budget year and at least 4 succeeding years. In addition, in February 2004 the Congressional Budget Office projected that DOD's demand for resources could grow to about $490 billion in fiscal year 2009. DOD's own estimate for that same year was only $439 billion.[7] As a result of DOD's continuing use of optimistic assumptions, DOD has too many programs for the available dollars, which often leads to program instability, costly program stretch-outs, and program termination. Over the past few years, the mismatch between programs and budgets has continued, particularly in the area of weapons systems acquisition. For example, in January 2003, we reported that the estimated costs of developing eight major weapons systems had increased from about $47 billion in fiscal year 1998 to about $72 billion by fiscal year 2003.[8] (GAO-03-98, January 2003)

[7] Congressional Budget Office, *The Long-Term Implications of Current Defense Plans: Detailed Update for Fiscal Year 2004* (www.cbo.gov, February 2004). Figures from this report are in constant fiscal year 2004 dollars.

[8] U.S. General Accounting Office, *Major Management Challenges and Program Risks: Department of Defense*, GAO-03-98 (Washington, D.C.: January 2003). Figures from this report are in constant fiscal year 2003 dollars.

These examples clearly demonstrate not only the severity of DOD's current problems, but also the importance of business systems modernization as a critical element in the department's transformation efforts to improve the economy, efficiency, and effectiveness of it's operations, and to provide for transparency and accountability to Congress and American taxpayers.

Underlying Causes of Financial and Related Business Process Transformation Challenges

Since May 1997,[9] we have highlighted in various testimonies and reports what we believe are the underlying causes of the department's inability to resolve its long-standing financial management and related business management weaknesses and fundamentally reform its business operations. We found that one or more of these causes were contributing factors to the financial management and related business process weaknesses we just described. Over the years, the department has undertaken many initiatives intended to transform its business operations departmentwide and improve the reliability of information for decision making and reporting but has not had much success because it has not addressed the following four underlying causes:

- a lack of sustained top-level leadership and management accountability for correcting problems;
- deeply embedded cultural resistance to change, including military service parochialism and stovepiped operations;
- a lack of results-oriented goals and performance measures and monitoring; and
- inadequate incentives and accountability mechanisms relating to business transformation efforts.

If not properly addressed, these root causes will likely result in the failure of current DOD initiatives.

[9]U.S. General Accounting Office, *DOD High-Risk Areas: Eliminating Underlying Causes Will Avoid Billions of Dollars in Waste*, GAO/T-NSIAD/AIMD-97-143 (Washington, D.C.: May 1, 1997).

Lack of Sustained Leadership and Adequate Accountability

DOD has not routinely assigned accountability for performance to specific organizations or individuals who have sufficient authority to accomplish desired goals. For example, under the Chief Financial Officers Act of 1990,[10] it is the responsibility of the agency Chief Financial Officer (CFO) to establish the mission and vision for the agency's future financial management and to direct, manage, and provide oversight of financial management operations. However, at DOD, the Comptroller—who is by statute the department's CFO—has direct responsibility for only an estimated 20 percent of the data relied on to carry out the department's financial management operations. The other 80 percent comes from DOD's other business operations and is under the control and authority of other DOD officials.

In addition, DOD's past experience has suggested that top management has not had a proactive, consistent, and continuing role in integrating daily operations for achieving business transformation related performance goals. It is imperative that major improvement initiatives have the direct, active support and involvement of the Secretary and Deputy Secretary of Defense to ensure that daily activities throughout the department remain focused on achieving shared, agencywide outcomes and success. While the current DOD leadership, such as the Secretary, Deputy Secretary, and Comptroller, have certainly demonstrated their commitment to reforming the department, the magnitude and nature of day-to-day demands placed on these leaders following the events of September 11, 2001, clearly affect the level of oversight and involvement in business transformation efforts that these leaders can sustain. Given the importance of DOD's business transformation effort, it is imperative that it receive the sustained leadership needed to improve the economy, efficiency, and effectiveness of DOD's business operations. Based on our surveys of best practices of world-class organizations,[11] strong executive CFO and Chief Information Officer (CIO) leadership and centralized control over systems investments are essential to (1) making financial management an entitywide priority, (2)

[10] Chief Financial Officers Act of 1990, Pub. L. No. 101-576, 104 Stat. 2842, Nov. 15, 1990 (*codified, as amended in scattered sections of* title 31, United States Code).
[11] U.S. General Accounting Office, *Executive Guide: Creating Value Through World-class Financial Management*, GAO/AIMD-00-134 (Washington, D.C.: April 2000) and U.S. General Accounting Office, *Executive Guide: Maximizing the Success of Chief Information Officers: Learning From Leading Organizations*, GAO-01-376G (Washington, D.C.: February 2001).

providing meaningful information to decision makers, (3) building a team of people that delivers results, and (4) effectively leveraging technology to achieve stated goals and objectives.

Cultural Resistance and Parochialism

Cultural resistance to change, military service parochialism, and stovepiped operations have all contributed significantly to the failure of previous attempts to implement broad-based management reforms at DOD. The department has acknowledged that it confronts decades-old problems deeply grounded in the bureaucratic history and operating practices of a complex, multifaceted organization. Recent audits reveal that DOD has made only small inroads in addressing these challenges. For example, the Bob Stump National Defense Authorization Act for Fiscal Year 2003[12] requires the DOD Comptroller to determine that each financial system improvement meets the specific conditions called for in the act before DOD obligates funds in amounts exceeding $1 million. However, we found that most system improvement efforts involving obligations over $1 million were not reviewed by the DOD Comptroller for the purpose of making that determination and that DOD continued to lack a mechanism for proactively identifying system improvement initiatives. We asked for, but DOD did not provide, comprehensive data for obligations in excess of $1 million for business system modernization. Based on a comparison of the limited information available for fiscal years 2003 and 2004, we identified $479 million in reported obligations by the military services that were not submitted to the DOD Comptroller for review.

In addition, in September 2003,[13] we reported that DOD continued to use a stovepiped approach to develop and fund its business system investments. Specifically, we found that DOD components receive and control funding for business systems investments without being subject to the scrutiny of the DOD Comptroller. DOD's ability to address its current "business-as-usual" approach to business system investments is further hampered by its lack of (1) a complete inventory of business systems (a condition we first highlighted in 1998), (2) a standard definition of what constitutes a business system, (3) a well-defined enterprise architecture, and (4) an

[12] Bob Stump National Defense Authorization Act for Fiscal Year 2003, Pub. L. No. 107-314, § 1004 (d), 116 Stat. 2458, 2629, Dec. 2, 2002.
[13] U.S. General Accounting Office, *DOD Business Systems Modernization: Important Progress Made to Develop*

effective approach for the control and accountability over business system investments. Until DOD develops and implements an effective strategy for overcoming resistance, parochialism, and stovepiped operations, its transformation efforts will not be successful.

Lack of Results-Oriented Goals and Performance Measures

A key element of any major program is its ability to establish clearly defined goals and performance measures to monitor and report its progress to management. However, DOD has not yet established measurable, results-oriented goals to evaluate BMMP's cost, schedule and performance outcomes and results, or explicitly defined performance measures to evaluate the architecture quality, content, and utility of subsequent major updates to its initial business enterprise architecture (BEA). For example, in our September 2003 report[14], we stated that DOD had not defined specific plans outlining how it intends to extend and evolve the initial BEA to include the missing scope and details that we identified. Instead, DOD's primary BEA goal was to complete as much of the architecture as it could within a set period of time. According to DOD, it intends to refine the initial BEA through at least six different major updates of its architecture between February 2004 and the second quarter of 2005. However, it remains unclear what these major updates will individually or collectively provide and how they contribute to achieving DOD's goals.

DOD recognizes that it needs to define measurable goals and performance measures. In its March 15, 2004, progress report to defense congressional committees on the status of BMMP's business transformation efforts, DOD reported that it plans to establish an initial approved program baseline to evaluate the cost, schedule, and performance of the BMMP. Given that DOD has reported disbursements of $111 million since development efforts began in fiscal year 2002, it is critical that it establish meaningful, tangible, and measurable program goals and objectives—short-term and long-term.

Until DOD develops and implements clearly defined results-oriented goals for the overall program, including the architecture content of each major update of its architecture, the

Business Enterprise Architecture, but Much Work Remains, GAO-03-1018 (Washington, D.C.: September 19, 003).

department will continue to lack a clear measure of the BMMP's progress in transforming the department's business operations and in providing the Congress reasonable assurance that funds are being directed towards resolving the department's long-standing business operational problems.

Lack of Incentives for Change

The final underlying cause of the department's long-standing inability to carry out needed fundamental reform has been the lack of incentives for making more than incremental change to existing "business-as-usual" operations, systems, and organizational structures. Traditionally, DOD has focused on justifying its need for more funding rather than on the outcomes its programs have produced. DOD has historically measured its performance by resource components such as the amount of money spent, people employed, or number of tasks completed. Incentives for its decision makers to implement changed behavior have been minimal or nonexistent.

The lack of incentive to change is evident in the business systems modernization area. Despite DOD's acknowledgement that many of its systems are error prone, duplicative, and stovepiped, DOD continues to allow its component organizations to make their own investments independently of one another and implement different system solutions to solve the same business problems. These stovepiped decision-making processes have contributed to the department's current complex, error-prone environment. The DOD Comptroller recently testified that DOD's actual systems inventory could be twice as many as the number of systems the department currently recognizes as its systems inventory. In March 2003, we reported that ineffective program management and oversight, as well as a lack of accountability, resulted in DOD continuing to invest hundreds of millions of dollars in system modernization efforts without any assurance that the projects will produce operational improvements commensurate with the amount invested.[15]

[14] GAO-03-1018
[15] GAO-03-465.

For example, the estimated cost of one of the business system investment projects that we reviewed increased by as much as $274 million, while its schedule slipped by almost 4 years. After spending $126 million, DOD terminated that project in December 2002, citing poor performance and increasing costs. GAO and the DOD IG have identified numerous business system modernization efforts that are not economically justified on the basis of cost, benefits and risk; take years longer than planned; and fall short of delivering planned or needed capabilities. Despite this track record, DOD continues to increase spending on business systems while at the same time it lacks the effective management and oversight needed to achieve real results. Without appropriate incentives to improve their project management, ongoing oversight, and adequate accountability mechanisms, DOD components will continue to develop duplicative and nonintegrated systems that are inconsistent with the Secretary's vision for reform.

To effect real change, actions are needed to (1) break down parochialism and reward behaviors that meet DOD-wide goals, (2) develop incentives that motivate decision makers to initiate and implement efforts that are consistent with better program outcomes, including saying "no" or pulling the plug early on a system or program that is failing, and (3) facilitate a congressional focus on results-oriented management, particularly with respect to resource allocation decisions.

Keys to Successful Reform

As we have previously reported,[16] and the success of the more narrowly defined DOD initiatives we will discuss later illustrate, the following key elements collectively will enable the department to effectively address the underlying causes of its inability to resolve its long-standing financial and business management problems. These elements are

- addressing the department's financial management and related business operational challenges as part of a comprehensive, integrated, DOD-wide strategic plan for business reform;

[16] GAO-02-497T.

- providing for sustained and committed leadership by top management, including but not limited to the Secretary of Defense;
- establishing resource control over business systems investments;
- establishing clear lines of responsibility, authority, and accountability;
- incorporating results-oriented performance measures and monitoring progress tied to key financial and business transformation objectives;
- providing appropriate incentives or consequences for action or inaction;
- establishing an enterprise architecture to guide and direct business systems modernization investments; and
- ensuring effective oversight and monitoring.

These elements, which should not be viewed as independent actions but rather as a set of interrelated and interdependent actions, are reflected in the recommendations we have made to DOD and are consistent with those actions discussed in the department's April 2001 financial management transformation report.[17] The degree to which DOD incorporates them into its current reform efforts—both long and short term—will be a deciding factor in whether these efforts are successful. Thus far, the department's progress in implementing our recommendations has been slow.

DOD Business Transformation Efforts

Over the years, we have given DOD credit for beginning numerous initiatives intended to improve its business operations. Unfortunately, most of these initiatives failed to achieve their intended objective in part, we believe, because they failed to incorporate key elements that in our experience are critical to successful reform. Today, we would like to discuss one very important broad-based initiative, the BMMP, DOD currently has underway that, if properly developed and implemented, will result in significant improvements in DOD's business operations. Within the next few months we intend to issue a report on the status of DOD's efforts to refine and implement its enterprise architecture and the results of our review of two on going

[17] Department of Defense, *Transforming Department of Defense Financial Management: A Strategy for Change* (Washington, D.C.: Apr. 13, 2001).

DOD system initiatives. In addition to the BMMP, DOD has undertaken several interim initiatives in recent years that have resulted in tangible, although limited, improvements. We believe that these tangible improvements were possible because DOD has accepted our recommendations and incorporated many of the key elements critical for reform. Furthermore, we would like to offer two suggestions for legislative consideration that we believe could significantly increase the likelihood of a successful business transformation effort at DOD.

Business Management Modernization Program

The BMMP, which the department established in July 2001 following our recommendation that DOD develop and implement an enterprise architecture, is vital to the department's efforts to transform its business operations.[18] The purpose of the BMMP is to oversee development and implementation of a departmentwide BEA, transition plan, and related efforts to ensure that DOD business system investments are consistent with the architecture. A well-defined and properly implemented BEA can provide assurance that the department invests in integrated enterprisewide business solutions and, conversely, can help move resources away from nonintegrated business system development efforts. As we reported in July 2003,[19] DOD had developed an initial version of its departmentwide architecture for modernizing its current financial and business operations and systems and had expended tremendous effort and resources in doing so. However, substantial work remains before the architecture will be sufficiently detailed and the means for implementing it will be adequately established to begin to have a tangible impact on improving DOD's overall business operations. We cannot overemphasize the degree of difficulty DOD faces in developing and implementing a well-defined architecture to provide the foundation that will guide its overall business transformation effort.

On the positive side, during its initial efforts to develop the architecture, the department established some of the architecture management capabilities advocated by best practices and federal guidance,[20] such as establishing a program office, designating a chief architect, and using

[18] GAO-01-525.
[19] GAO-03-877R.
[20] U.S. General Accounting Office, *Information Technology: A Framework for Assessing and Improving Enterprise Architecture Management (Version 1.1)*, GAO-03-584G (Washington, D.C.: April 2003).

an architecture development methodology and automated tool. Further, DOD's initial version of its business enterprise architecture provided a foundation on which to build and ultimately produce a well-defined business enterprise architecture. For example, in September 2003,[21] we reported that the "To Be" descriptions address, to at least some degree, how DOD intends to operate in the future, what information will be needed to support these future operations, and what technology standards should govern the design of future systems.

While some progress has been made, DOD has not yet taken important steps that are critical to its ability to successfully use the enterprise architecture to drive reform throughout the department's overall business operations. For example, DOD has not yet defined and implemented the following.

- Detailed plans to extend and evolve its initial architecture to include the missing scope and detail required by the Bob Stump National Defense Authorization Act for Fiscal Year 2003 and other relevant architectural requirements. Specifically, (1) the initial version of the BEA excluded some relevant external requirements, such as requirements for recording revenue, and lacked or provided little descriptive content pertaining to its "As Is" and "To Be" environments and (2) DOD had not yet developed the transition plan needed to provide a temporal road map for moving from the "As Is" to the "To Be" environment.

- An effective approach to select and control business system investments[22] for obligations exceeding $1 million. As we previously stated, and it bears repeating here, DOD components currently receive direct funding for their business systems and continue to make their own parochial decisions regarding those investments without having received the scrutiny of the DOD Comptroller as required by the Bob Stump National Defense Authorization Act for Fiscal Year of 2003. Later, we will

[21] GAO-03-1018.
[22] Business systems include financial and nonfinancial systems, such as civilian personnel, finance, health, logistics, military personnel, procurement, and transportation, with the common element being the generation or use of financial data to support DOD's business operations.

offer a suggestion for improving the management and oversight of the billions of dollars DOD invests annually in business systems.

DOD invests billions of dollars annually to operate, maintain, and modernize its business systems. For fiscal year 2004, the department requested approximately $28 billion in IT funding to support a wide range of military operations as well as DOD business systems operations, of which approximately $18.8 billion[23]—$5.8 billion for business systems and $13 billion for business systems infrastructure—relates to the operation, maintenance, and modernization of the department's reported thousands of business systems. The $18.8 billion is spread across the military services and defense agencies, with each receiving its own funding for IT investments.

However, as we reported,[24] DOD lacked an efficient and effective process for managing, developing, and implementing its business systems. These long-standing problems continue despite the significant investments in business systems by DOD components each year. For example, in March 2003 we reported that DOD's oversight of four DFAS projects we reviewed had been ineffective.[25] Investment management responsibility for the four projects rested with the Defense Finance and Accounting Service (DFAS), the DOD Comptroller, and the DOD CIO. In discharging this responsibility, each had allowed project investments to continue year after year, even through the projects had been marked by cost increases, schedule slippages, and capability changes. As a result DOD had invested approximately $316 million in four DFAS system modernization projects without demonstrating that this substantial investment would markedly improve DOD financial management information for decision making and financial reporting purposes.

Specifically, we found that four DFAS projects reviewed lacked an approved economic analysis that reflected the fact that expected project costs had increased, while in some cases the benefits had decreased. For instance as we previously stated, the estimated cost of one project— referred to as the Defense Procurement Payment System (DPPS)— had increased by as much as $274

[23]The remaining $9 billion is for National Security Systems. These systems are intelligence systems, cryptologic activities related to national security, military command and control systems, and equipment that is an integral part of a weapon or weapons system or is critical to the direct fulfillment of military or intelligence mission.
[24] GAO-03-465 and GAO-03-553T.
[25] GAO-03-465.

million, while its schedule slipped by almost 4 years. Such project analyses provide the requisite justification for decision makers to use in determining whether to invest additional resources in anticipation of receiving commensurate benefits and mission value. For each of the four projects we reviewed we found that DOD oversight entities—DFAS, the DOD Comptroller, and the DOD CIO—did not question the impact of the cost increases and schedule delays, and allowed the projects to proceed in the absence of the requisite analytical justification. Furthermore, in one case, they allowed a project estimated to cost $270 million, referred to as the DFAS Corporate Database/DFAS Corporate Warehouse (DCD/DCW), to proceed without an economic analysis. In another case, they allowed DPPS to continue despite known concerns about the validity of the project's economic analysis.

DOD subsequently terminated two—DPPS and the Defense Standard Disbursing System (DSDS)—of the four DFAS system modernization projects reviewed. As we previous mentioned, DPPS was terminated due to poor program performance and increasing costs after 7 years of effort and an investment of over $126 million. DFAS terminated DSDS after approximately 7 years of effort and an investment of about $53 million, noting that a valid business case for continuing the effort could not be made. These two terminated projects were planned to provide DOD the capability to address some of DOD's long-standing contract and vendor payment problems.

In addition to project management issues that continue to result in systems that do not perform as expected and cost more than planned, we found that DOD continues to lack a complete and reliable inventory of its current systems. In September 2003, we reported that DOD had created a repository of information about its existing systems inventory of approximately 2,300 business systems (up from 1,731 in October 2002) as part of its ongoing business systems modernization program, and consistent with our past recommendation.[26] Due to its lack of visibility over systems departmentwide, DOD had to rely upon data calls to obtain its information. Unfortunately, due to its lack of an effective methodology and process for identifying business systems, including a clear definition of what constitutes a business system, DOD continues to lack assurance that its systems inventory is reliable and complete. In fact, the DOD Comptroller

[26] U.S. General Accounting Office, *Financial Management: DOD Improvement Plan Needs Strategic Focus*, GAO-

testified last week before the Senate Armed Services Subcommittee on Readiness and Management Support that the size of DOD's actual systems inventory could be twice the size currently reported. This lack of visibility over current business systems in use throughout the department hinders DOD's ability to identify and eliminate duplicate and nonintegrated systems and transition to its planned systems environment in an efficient and effective manner.

Of the 2,274 business systems recorded in DOD's systems inventory repository, the department reportedly has 665 systems to support human resource management, 565 systems to support logistical functions, 542 systems to perform finance and accounting functions, and 210 systems to support strategic planning and budget formulation. Table 1, which presents the composition of DOD business systems by functional area, reveals the numerous and redundant systems operating in the department today.

Table 1: Reported DOD Business Systems by Domain and Functional Area

Domain	Air Force	Army	Navy/ Marine Corps	DFAS	Other	Total
Acquisition	27	31	61	3	21	143
Accounting and finance	43	88	195	165	51	542
Human resource management	71	387	86	33	88	665
Installations and environment	12	98	9	1	8	128
Logistics	180	191	104	11	79	565
Strategic planning and budgeting	23	63	98	15	11	210
Enterprise information environment	1	5	2	3	10	21
Total	**357**	**863**	**555**	**231**	**268**	**2,274**

Source: GAO analysis of BMMP data.

As we have previously reported,[27] these numerous systems have evolved into the overly complex and error-prone operation that exists today, including (1) little standardization across DOD components, (2) multiple systems performing the same tasks, (3) the same data stored in multiple systems, (4) manual data entry into multiple systems, and (5) a large number of data translations and interfaces that combine to exacerbate problems with data integrity. The department has recognized the uncontrolled proliferation of systems and the need to eliminate as many systems as possible and integrate and standardize those that remain. In fact, the two terminated DFAS

01-764 (Washington, D.C.: Aug. 17, 2001).
[27] U.S. General Accounting Office, *DOD Financial Management: Important Steps Underway But Reform Will*

projects were intended to reduce the number of systems or eliminate a portion of different systems that perform the same function. For example, DPPS was intended to consolidate eight contract and vendor pay systems and DSDS was intended to eliminate four different disbursing systems.

Until DOD completes its efforts to refine and implement its enterprise architecture and transition plan, and develop and implement an effective approach for selecting and controlling business system investments, DOD will continue to lack (1) a comprehensive and integrated strategy to guide its business process and system changes, and (2) results-oriented measures to monitor and measure progress, including whether system development and modernization investment projects adequately incorporate leading practices used by the private sector and federal requirements and achieve performance and efficiency commensurate with the cost. These elements are critical to the success of DOD's BMMP.

Developing and implementing a BEA for an organization as large and complex as DOD is a formidable challenge, but it is critical to effecting the change required to achieve the Secretary's vision of relevant, reliable, and timely financial and other management information to support the department's vast operations. As mandated, we plan to continue to report on DOD's progress in developing the next version of its architecture, developing its transition plan, validating its "As Is" systems inventory, and controlling its system investments.

Interim Initiatives

Since DOD's overall business process transformation is a long-term effort, in the interim it is important for the department to focus on improvements that can be made using, or requiring only minor changes to, existing automated systems and processes. As demonstrated by the examples we will highlight in this testimony, leadership, real incentives, accountability, and oversight and monitoring—key elements to successful reform—have brought about improvements in some DOD operations, such as more timely commercial payments, reduced payment recording errors, and significant reductions in individually billed travel card delinquency rates.

Require a Long-term Commitment, GAO-02-784T (Washington, D.C.: June 4, 2002).

To help achieve the department's goal of improved financial information, the DOD Comptroller has developed a Financial Management Balanced Scorecard that is intended to align the financial community's strategy, goals, objectives, and related performance measures with the departmentwide risk management framework established as part of DOD's Quadrennial Defense Review, and with the President's Management Agenda. To effectively implement the balanced scorecard, the Comptroller is planning to cascade the performance measures down to the military services and defense agency financial communities, along with certain specific reporting requirements. DOD has also developed a Web site where implementation information and monthly indicator updates will be made available for the financial communities' review. At the departmentwide level, certain financial metrics will be selected, consolidated, and reported to the top levels of DOD management for evaluation and comparison. These "dashboard" metrics are intended to provide key decision makers, including Congress, with critical performance information at a glance, in a consistent and easily understandable format.

DFAS has been reporting the metrics cited below for several years, which, under the leadership of DFAS' Director and DOD's Comptroller, have reported improvements, including the following.

- From April 2001 to January 2004, DOD reduced its commercial pay backlogs (payment delinquencies) by 55 percent.
- From March 2001 to December 2003, DOD reduced its payment recording errors by 33 percent.
- The delinquency rate for individually billed travel cards dropped from 18.4 percent in January 2001 to 10.7 percent in January 2004.

Using DFAS' metrics, management can quickly see when and where problems are arising and can focus additional attention on those areas. While these metrics show significant improvements from 2001 to today, statistics for the last few months show that progress has slowed or even

taken a few steps backward for payment recording errors and commercial pay backlogs. Our report last year on DOD's metrics program[28] included a caution that, without modern integrated systems and the streamlined processes they engender, reported progress may not be sustainable if workload is increased.

Since we reported problems with DOD's purchase card program, DOD and the military services have taken actions to address all of our 109 recommendations. In addition, we found that DOD and the military services took action to improve the purchase card program consistent with the requirements of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 and the DOD Appropriations Act for Fiscal Year 2003.[29] Specifically, we found that DOD and the military services had done the following.

- Substantially reduced the number of purchase cards issued. According to GSA records, DOD had reduced the total number of purchase cards from about 239,000 in March 2001 to about 134,609 in January 2004. These reductions have the potential to significantly improve the management of this program.

- Issued policy guidance to field activities to (1) perform periodic reviews of all purchase card accounts to reestablish a continuing bona fide need for each card account, (2) cancel accounts that were no longer needed, and (3) devise additional controls over infrequently used accounts to protect the government from potential cardholder or outside fraudulent use.

- Issued disciplinary guidelines, separately, for civilian and military employees who engage in improper, fraudulent, abusive, or negligent use of a government charge card.

[28] U.S. General Accounting Office, *Financial Management: DOD's Metrics Program Provides Focus for Improving Performance,* GAO-03-457, (Washington, D.C.: Mar. 28, 2003).

[29] The Department of Defense Appropriations Act for Fiscal Year 2003, Pub. L. No. 107-248, § 8149, 116 Stat. 1519, 1572, Oct. 23, 2002.

In addition, to monitor the purchase card program, the DOD IG and the Navy have prototyped and are now expanding a data-mining capability to screen for and identify high-risk transactions (such as potentially fraudulent, improper, and abusive use of purchase cards) for subsequent investigation. On June 27, 2003, the DOD IG issued a report[30] summarizing the results of an in-depth review of purchase card transactions made by 1,357 purchase cardholders. The report identified 182 cardholders who potentially used their purchase cards inappropriately or fraudulently.

We believe that consistent oversight played a major role in bringing about these improvements in DOD's purchase and travel card programs. During 2001, 2002, and 2003, seven separate congressional hearings were held on the Army and Navy purchase and individually billed travel card programs. Numerous legislative initiatives aimed at improving DOD's management and oversight of these programs also had a positive impact.

Another important initiative underway at the department pertains to financial reporting. Under the leadership of DOD Comptroller, the department is working to instill discipline into its financial reporting processes to improve the reliability of the department's financial data. Resolution of serious financial management and related business management weaknesses is essential to achieving any opinion on the DOD consolidated financial statements. Pursuant to the requirements in section 1008 of the National Defense Authorization Act for Fiscal Year 2002,[31] DOD has reported for the past 3 years on the reliability of the department's financial statements, concluding that the department is not able to provide adequate evidence supporting material amounts in its financial statements. Specifically, DOD stated that it was unable to comply with applicable financial reporting requirements for (1) property, plant, and equipment, (2) inventory and operating materials and supplies, (3) environmental liabilities, (4) intragovernmental eliminations and related accounting entries, (5) disbursement activity, and (6) cost accounting by responsibility segment. Although DOD represented that the military retirement health care liability data had improved for fiscal year 2003, the cost of direct health care provided by DOD-managed military treatment facilities was a significant amount of DOD's total recorded health

[30] Department of Defense, Office of the Inspector General, *Summary Report on Joint Review of Selected DOD Purchase Card Transactions*, D2003-109 (Washington, D.C.: June 27, 2003).
[31] National Defense Authorization Act for Fiscal Year 2003, Pub. L. No. 107-107, §1008, 115 Stat. 1012, 1204, Dec.

care liability and was based on estimates for which adequate support was not available. DOD has indicated that by acknowledging its inability to produce reliable financial statements, as required by the act, the department saves approximately $23 million a year through reduction in the level of resources needed to prepare and audit financial statements. However, DOD has set the goal of obtaining a favorable opinion on its fiscal year 2007 departmentwide financial statements. To this end, DOD components and agencies have been tasked with addressing material line item deficiencies in conjunction with the BMMP. This is an ambitious goal and we have been requested by Congress to review the feasibility and cost effectiveness of DOD's plans for obtaining such an opinion within the stated time frame.

To instill discipline in its financial reporting process, the DOD Comptroller requires DOD's major components to prepare quarterly financial statements along with extensive footnotes that explain any improper balances or significant variances from previous year quarterly statements. All of the statements and footnotes are analyzed by Comptroller office staff and reviewed by the Comptroller. In addition, the midyear and end-of-year financial statements must be briefed to the DOD Comptroller by the military service Assistant Secretary for Financial Management or the head of the defense agency. We have observed several of these briefings and have noted that the practice of preparing and explaining interim financial statements has led to the discovery and correction of numerous recording and reporting errors.

If DOD continues to provide for active leadership, along with appropriate incentives and accountability mechanisms, improvements will continue to occur in its programs and initiatives.

Suggestions for Legislative Consideration

We would like to offer two suggestions for legislative consideration that we believe could contribute significantly to the department's ability to not only address the impediments to DOD success but also to incorporate needed key elements to successful reform. These suggestions would include the creation of a chief management official and the centralization of responsibility

28, 2001.

and authority for business system investment decisions with the domain[32] leaders responsible for the department's various business areas, such as logistics and human resource management.

Chief Management Official

Previous failed attempts to improve DOD's business operations illustrate the need for sustained involvement of DOD leadership in helping to assure that the DOD's financial and overall business process transformation efforts remain a priority. While the Secretary and other key DOD leaders have certainly demonstrated their commitment to the current business transformation efforts, the long-term nature of these efforts requires the development of an executive position capable of providing strong and sustained executive leadership over a number of years and various administrations. The day-to-day demands placed on the Secretary, the Deputy Secretary, and others make it difficult for these leaders to maintain the oversight, focus, and momentum needed to resolve the weaknesses in DOD's overall business operations. This is particularly evident given the demands that the Iraq and Afghanistan postwar reconstruction activities and the continuing war on terrorism have placed on current leaders. Likewise, the breadth and complexity of the problems preclude the Under Secretaries, such as the DOD Comptroller, from asserting the necessary authority over selected players and business areas.

While sound strategic planning is the foundation upon which to build, sustained leadership is needed to maintain the continuity needed for success. One way to ensure sustained leadership over DOD's business transformation efforts would be to create a full-time executive level II position for a chief management official who would serve as the Principal Under Secretary of Defense for Management.[33] This position would provide the sustained attention essential for addressing key stewardship responsibilities such as strategic planning, performance and financial management, and business systems modernization in an integrated manner, while also facilitating the overall business transformation operations within DOD. This position could be

[32]DOD has one Enterprise Information Environment Mission, and six departmental domains including (1) acquisition/ procurement, (2) finance, accounting, and financial management, (3) human resource management, (4) logistics, (5) strategic planning and budgeting, and 6) installations and environment.

[33] On September 9, 2002, GAO convened a roundtable of executive branch leaders and management experts to discuss the Chief Operating Officer concept. For more information see U.S. General Accounting Office, *Highlights of a GAO Roundtable: The Chief Operating Officer Concept: A Potential Strategy to Address Federal Governance Challenges*, GAO-03-192SP (Washington, D.C.: Oct. 4, 2002).

filled by an individual, appointed by the President and confirmed by the Senate, for a set term of 7 years with the potential for reappointment. Such an individual should have a proven track record as a business process change agent in large, complex, and diverse organizations—experience necessary to spearhead business process transformation across the department, and potentially administrations, and serve as an integrator for the needed business transformation efforts. In addition, this individual would enter into an annual performance agreement with the Secretary that sets forth measurable individual goals linked to overall organizational goals in connection with the department's overall business transformation efforts. Measurable progress towards achieving agreed upon goals would be a basis for determining the level of compensation earned, including any related bonus. In addition, this individual's achievements and compensation would be reported to Congress each year.

Central Control Over System Investments

We have made numerous recommendations to DOD intended to improve the management oversight and control of its business systems investments. However, as previously mentioned, progress in achieving this control has been slow and, as a result, DOD has little or no assurance that current business systems investments are being spent in an economically efficient and effective manner. DOD's current systems funding process has contributed to the evolution of an overly complex and error-prone information technology environment containing duplicative, nonintegrated, and stovepiped systems. Given that DOD plans to spend approximately $19 billion on business systems and related infrastructure for fiscal year 2004—including an estimated $5 billion in modernization money—it is critical that actions be taken to gain more effective control over such business systems funding.

The second suggestion we have for legislative action to address this issue, consistent with our open recommendations to DOD, is to establish specific management oversight, accountability, and control of funding with the "owners" of the various functional areas or domains. This legislation would define the scope of the various business areas (e.g., acquisition, logistics, finance and accounting) and establish functional responsibility for management of the portfolio of business systems in that area with the relevant Under Secretary of Defense for the six

departmental domains and the CIO for the Enterprise Information Environment Mission (information technology infrastructure). For example, planning, development, acquisition, and oversight of DOD's portfolio of logistics business systems would be vested in the Under Secretary of Defense for Acquisition, Technology, and Logistics.

We believe it is critical that funds for DOD business systems be appropriated to the domain owners in order to provide for accountability, transparency, and the ability to prevent the continued parochial approach to systems investment that exists today. The domains would establish a hierarchy of investment review boards with DOD-wide representation, including the military services and Defense agencies. These boards would be responsible for reviewing and approving investments to develop, operate, maintain, and modernize business systems for the domain portfolio, including ensuring that investments were consistent with DOD's BEA. All domain owners would be responsible for coordinating their business systems investments with the chief management official who would chair the Defense Business Systems Modernization Executive Committee and provide a cross-domain perspective. Domain leaders would also be required to report to Congress through the chief management official and the Secretary of Defense on applicable business systems that are not compliant with review requirements and to include a summary justification for noncompliance.

Conclusion

As seen again in Iraq, the excellence of our military forces is unparalleled. However, that excellence is often achieved in the face of enormous challenges in DOD's financial management and other business areas, which have serious and far-reaching implications related to the department's operations and critical national defense mission. Our recent work has shown that DOD's long-standing financial management and business problems have resulted in fundamental operational problems, such as failure to properly pay mobilized Army Guard soldiers and the inability to provide adequate accountability and control over supplies and equipment shipments in support of Operation Iraqi Freedom. Further, the lack of adequate transparency and appropriate accountability across all business areas has resulted in certain fraud, waste, and abuse and hinders DOD's attempts to develop world-class operations and activities to support its

forces. As our nation continues to be challenged with growing budget deficits and increasing pressure to reduce spending levels, every dollar that DOD can save through improved economy and efficiency of its operations is important.

DOD's senior leaders have demonstrated a commitment to transforming the department and improving its business operations and have taken positive steps to begin this effort. We believe that implementation of our open recommendations and our suggested legislative initiatives would greatly improve the likelihood of meaningful, broad-based reform at DOD. The continued involvement and monitoring by congressional committees will also be critical to ensure that DOD's initial transformation actions are sustained and extended and that the department achieves its goal of securing the best performance and highest measure of accountability for the American people. We commend the Subcommittee for holding this hearing and we encourage you to use this vehicle, on at least an annual basis, as a catalyst for long overdue business transformation at DOD.

Mr. Chairman, this concludes our statement. We would be pleased to answer any questions you or other members of the Subcommittee may have at this time.

Contacts and Acknowledgments

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(192127)

Statement of JoAnn R. Boutelle
Deputy Chief Financial Officer -- Department of Defense
House Armed Services Committee
Subcommittee on Terrorism, Unconventional Threats and Capabilities
31 March 2004

Mr. Chairman, members of the Committee, I am happy to be here to discuss the transformation of Department of Defense (DoD) business management.

At the outset, I want to underscore the resolve of the Department of Defense to sustain and expand the substantial business management progress of the last three years. Today I want to summarize the management challenges DoD has faced, what we have done to overcome these challenges, and the work ahead to finish the task.

Business Management Challenges DoD Has Faced

Over the past three years, under Secretary Rumsfeld's strong leadership and determination, the Department of Defense has made enormous progress in overcoming business management challenges that developed and persisted over the past several decades. For many years, DoD business management systems have been unable satisfactorily to:

- Interact with one another and facilitate the synthesis of management processes;
- Provide DoD decision makers with timely, accurate, and reliable information;
- Fulfill all financial management laws, standards, and requirements; or
- Produce auditable financial statements.

The primary cause of this situation was that for decades the military services and most DoD agencies and functional communities were permitted to develop and use their own business processes and systems. There was no requirement to adhere to a DoD-wide architecture or set of common standards. Inevitably these independent systems rarely could interact with other systems. Their information could not be easily exchanged nor aggregated for use by senior DoD leaders for decision making. Additionally, DoD's inability to generate clean auditable financial statements reflects the fact that DoD's business systems were designed to achieve a specific functional purpose (logistics, acquisition, human resources, etc.) – not to produce data necessary for such statements.

One of the most important actions of the Bush Administration regarding DoD business management was to decide that marginal changes would not be sufficient to overcome challenges that had been developing for decades. In previous administrations, marginal changes had produced only marginal results. So in 2001, Secretary Rumsfeld and his leadership team embarked on an ambitious path to achieve the comprehensive solution needed to give the Department superlative, integrated management processes and systems that meet federal government requirements – notably, auditable financial statements resulting in clean (unqualified) audit opinions.

Business Management Modernization Program

To transform DoD business management, DoD leaders realized that we needed to transform management processes and systems in all major functional areas. To do this, we created the Business Management Modernization Program (BMMP).

BMMP is a massive undertaking and will take several more years to complete. This program is centered around changing our business processes to achieve efficiencies and, in the process, eliminating redundant and non-compatible systems. We are working to streamline, reengineer, and standardize our business practices -- not simply improve the handling of information. BMMP will enable us to transition from the current collection of predominantly incompatible and inadequate management systems to an integrated network of systems, based on the uniform implementation of requirements across the Department. Our last completed inventory identified about 2300 DoD business systems. Our ongoing efforts to identify all DoD business systems indicate that the real total is a much higher number.

Early on, DoD leaders determined that a top-down, incremental approach was necessary for successful business transformation. We are pleased that the General Accounting Office (GAO) – which continues to thoroughly review our plans– agrees with this approach. The Department's task is to transform an extraordinarily complex conglomeration of business systems and processes that we use to run our military and civilian operations day-to-day and around the world. Our only practical option is to approach transformation incrementally. We cannot shut down the Department of Defense for a decade, throw out all old business processes and systems, and start from scratch guided by a fully developed, comprehensive enterprise architecture. Instead, our task is like trying to change the tires on an automobile going 60 miles per hour. We must transform DoD business processes and systems without interrupting current business operations.

Evolution of the Business Enterprise Architecture and Transition Plan

The centerpiece of BMMP is the transformational tool known as the Business Enterprise Architecture (BEA). The BEA is a blueprint to guide DoD's diverse business communities in transforming their processes and systems. It will describe the requirements that DoD business processes and systems must meet to achieve the goals of transformation. The initial version of the BEA got us off to a strong start. But it will take several more versions, to refine and extend the architecture until it fully describes the end state of successful business transformation – what we term, the "To-Be" environment. Our aim is that each successive BEA version includes more of the detail needed to guide and complete the full transformation of DoD business processes and systems. The BEA will be an ongoing initiative requiring continuous update and maintenance.

Besides refining and extending the BEA, we also are aggressively building a comprehensive Transition Plan. The Transition Plan provides a high level view of roles and responsibilities for implementing business and financial reform. It also depicts the migration strategy from our legacy systems environment to the new mix of systems needed to achieve DoD business transformation. The Transition Plan will guide us from our "As Is" inefficient and ineffective environment to a "To Be" fully transformed state.

The FY 2005 budget requests $122 million to continue the transformation efforts of BMMP, including the evolution and extension of the BEA. I urge congressional support for that request, which is critical to the business transformation that all agree is vitally needed.

BMMP Governance

The Department's business transformation is being guided through an extensive and strong governance process that includes all senior DoD managers. Specific responsibilities for business transformation have recently been published.

The key to successful DoD business transformation is strong, integrated governance by the designated leaders or "Owners" of six business areas called Domains: Logistics, Acquisition, Installations and Environment, Human Resources Management, Accounting and Finance, and Strategic Planning and Budgeting – as well as the Mission Area Lead of the Mission Area. The Domain Owners are:

- Under Secretary of Defense (Acquisition, Technology and Logistics) for Logistics, Acquisition, and Installations and Environment.
- Under Secretary of Defense (Personnel and Readiness) for Human Resources Management.
- Under Secretary of Defense (Comptroller) for Accounting and Finance, and Strategic Planning and Budgeting.

As part of the Department's Global Information Grid (GIG), the Assistant Secretary of Defense (Networks and Information Integration)/Chief Information Officer -- ASD(NII)/CIO) –is the Mission Leader of the Enterprise Information Environment (EIE) Mission Area. This is Mission Area represents the common, integrated computing-communications environment composed of equipment, software, and common information capabilities or services for GIG Enterprise use.

At the Department level the Business Modernization and Systems Integration (BMSI) Office -- which works for the Under Secretary of Defense (Comptroller) -- is responsible to lead, coordinate, and integrate BMMP implementation. The Office reports on BMMP progress and issues to the BMMP Steering Committee, whose members include the Principal Deputies of the Domain Owners, as well as the Chief Information Officers, Chief Financial Officers, and Acquisition/Logistics Leads from each Military Service. The BMSI Office also reports to the BMMP Executive Committee, whose members include three Under Secretaries of Defense, the DoD CIO, and the Under Secretaries of the Services. Each Domain has a Steering Committee to carry out its oversight.

Portfolio Management and Controlling Investments

Domain Owners are responsible for overseeing business transformation for their functional area for the Military Services and other DoD components. They will fulfill their responsibilities through what we term portfolio management. Under our portfolio management concept, each Domain Owner will govern investments in information technology and process reengineering for their business area.

At this stage in the Department's business transformation, Domain Owners are focusing on certain high priority requirements. Most notably, we are focused on ensuring that our business systems support two critical requirements: obtaining an unqualified audit opinion on DoD financial statements, attaining total asset visibility, and achieving total force visibility. Using portfolio management, Domain Owners play the key role in ensuring that requirements, rules, and regulations are completely and consistently addressed in each system where they are relevant to these requirements. Domain Owners are actively engaged in portfolio management now, with some further along than others.

Section 1004 of the FY 2003 National Defense Authorization Act requires the DoD Comptroller to certify that system initiatives with obligations of more than $1 million are consistent with the Department's enterprise architecture and transition plan. Domain Owners are the key players is this certification. They ensure that initiatives within their domain are consistent with the current BEA version., so that the high priority DoD requirements are addressed consistently across the Department by each system, as a prerequisite of obtaining funding support.

Domain Owners also are being challenged to feed their evolving requirements into the process for expanding the BEA so that those requirements are incorporated into future BEA versions. This will ensure that the BEA continues to accurately incorporate the most recent changes in law, rules, regulations, and best practices, both commercial and government.

The BEA version scheduled for release this summer will be sufficient to enable the Department to ensure strong oversight of ongoing and planned investments in business systems with respect to our established current priorities. The Department already has certified some new system initiatives with planned obligations of more than $1 million, and is setting up the processes to thoroughly review all remaining systems planning to spend over $1 million, as required by law.

Domain Owners will also have the lead in determining what business systems need to be phased out – and when to do so to best complement the investment in new initiatives necessary to achieve our stated transformational goals, e.g., unqualified audit opinion. Since the Department began its business transformation in early 2001, we have eliminated approximately 238 systems. We still have a long way to go.

A Functional Hybrid Final Solution

The critical role of domain owners underscores that transformation of DoD business management will be functionally oriented. This means that if we determine that we can optimize our business practices by adopting a single system across the Department for a particular function, then we should do so. For example, all military personnel are governed by the same statutes, so DoD ought to have only one system to manage them, and that indeed is our plan. Travel is another example where standardization will result in efficiencies in time and dollars across the Department. Transformation is not as straightforward when attempting to standardize our current acquisition and logistics practices and systems. However, our goal is still a minimal number of systems necessary to achieve our mission goals and capabilities.

Each military service has unique warfighting and support systems necessary for them to carry out their respective missions.. Eventually, these distinctive systems could become fully integrated

into a cohesive network of systems -- either through modification to become consistent with the BEA, or through adaptation of the requirement within the BEA, or a combination of the two. Such an integration would be our goal. But complete and absolute consistency across the services is not practicable, given the varying mission requirements – for example, a system related to Navy's nuclear programs or its shipyard operations. For these unique systems, we still would need to integrate them into our DoD network of systems. But we might do that by splicing into the network, rather spending money to change a truly unique system.

In this sense, the Department's final transformed business management will be a hybrid. Many systems will be a streamlined integrated solution that developed through an end-to-end reengineering of a business process. But other systems might not be as "elegant" – having been developed through a combination of top-down and bottom-up work. And that is fine. We do not want to spend millions replacing older systems when they and the BEA can be adapted to integrate those systems into a cohesive DoD network.

Under either of these types of solutions, we expect to have thousands of fewer systems. Our BMMP aim is to rapidly identify redundant systems and consolidate others. Legacy systems will be retained and accommodated only for compelling reasons – e.g., because they are truly unique or because accommodating them is the most economical course.

Staying the Course

DoD business management systems and their related information technology (IT) systems are expensive. When the Department's business management transformation is complete, we expect these systems to consume a smaller portion of our budget and work vastly better. In the meantime, we must sustain investment in DoD business systems – both to enable the Department to meet its mission objectives and to continue to advance transformation.

It is tempting to believe that cutting the Department's IT funding will not hurt too much because it will force DoD leaders to accelerate the retirement of older, inefficient business systems. I wish it were that easy. If we could cut funding for older systems without excessive damage, we would have already done so and shifted that funding to other priorities within the Department..

Some also might believe that cutting the Department's IT funding would hasten business transformation by accelerating the shift from older to newer systems. In fact, it would likely have the opposite effect. We need to maintain our full IT funding to continue our business transformation without shutting down DoD operations. A major IT funding reduction would most likely force us to curtail funding in transformational activities, to include new systems, because we cannot terminate old systems until replacements are fully functional.

Closing

In closing, I want to thank this committee for its interest in the Department of Defense effort to transform its business operations. We are at a critical stage in our transformation. We are off to a strong start, but much remains to be done. We face difficult challenges as we maneuver our way during these next several years. Through aggressive implementation of the BEA, we are driving

the Department to transform business processes as rapidly as possible, while improving the effectiveness with which we execute our national security mission.

This transformation is as complex and difficult as any challenge the Department has faced. What is at stake is nothing less than the future quality and cost of DoD management of its hundreds of billions of dollars in assets, liabilities, and appropriations. Transformation is absolutely crucial to DoD's ability to enhance America's national security in this era of terrorism and uncertainty. The speed, accuracy, interoperability, reliability, and dependability of our information resources are critical.

The Department has a comprehensive program and plan to transform its business processes and systems in a sustainable way. We want and welcome Congress's support and assistance to complete this historic undertaking. Thank you.

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ON ARMED SERVICES

STATEMENT OF

DR. MARGARET MYERS

PRINCIPAL DEPUTY TO THE ASSISTANT SECRETARY OF DEFENSE

(DEPUTY DOD CHIEF INFORMATION OFFICER)

BEFORE

THE HOUSE ARMED SERVICES COMMITTEE

TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

SUBCOMMITTEE

MARCH 31, 2004

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ON ARMED SERVICES

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here to discuss the role of the Department of Defense (DoD) Chief Information Officer in the Department's business transformation.

Defense transformation means more than just leveraging technological advances, and it is more than a mechanical change. It requires a change in the way we think, the way we organize – it is a cultural change. Secretary Rumsfeld has said, "the two truly transforming things, conceivably, might be in information technology and information operation and networking and connecting things in ways that they function totally differently than they had previously."

Forces employing transformational concepts need transformed business processes that produce the timely results required for 21st Century warfighting. It is critical to ensure that Defense transformation is viewed as an enterprise endeavor and is implemented in a balanced way. We must provide capabilities to both the warfighting operations that are core to DoD and the important business operations, such as financial management and logistics that support our forces.

The Department's Business Management Modernization Program (BMMP) is an unprecedented effort to build a competitive advantage by transforming how we do Defense business. Through business transformation,

the Department will expend fewer resources on business processes and systems; ensure that men and women in uniform have the business information they need, whenever and wherever they need it; and inform Congress and the public, with confidence, on how we use our resources.

The DoD CIO partners with the DoD Comptroller in two key areas of the BMMP strategy: developing and using the business enterprise architecture to help reengineer the Department's business processes and establishing a portfolio management process to reduce and eliminate stove-piped systems.

The Comptroller is developing the Business Enterprise Architecture (BEA) for the business domains as an extension of the Global Information Grid (GIG) Architecture. The GIG Architecture is the Department's integrated enterprise architecture. Both the GIG Architecture and the BEA are living architectures that represent frameworks for iteratively transforming warfighting capabilities and business processes throughout the Department.

The GIG Architecture and its development process were favorably reviewed by the Government Accounting Office as part of its 2003 review of Executive Branch enterprise architectures. Both the GIG Architecture and the BEA are consistent with the Federal Enterprise Architecture.

The second major area in which the DoD CIO supports the Comptroller is with a strategy for managing information technology (IT) investments. Historically, IT investments, to include business systems, were defined and managed as platforms or systems. This resulted in duplicative investments to deliver the same or similar capabilities. The duplication was caused, in part, by the size and breadth of the organization, as well as a focus on system or platform capabilities rather than mission capabilities, which limited the ability to share information.

Now IT investments are managed as portfolios. Decisions on what IT investments to make, modify or terminate are based on the GIG Architecture, mission area goals, architectures, risk tolerance levels, potential returns, outcome goals and performance. In the context of managing the Department's portfolios of IT investments, the Department has three major mission areas – the Warfighter Mission Area, the Business Mission Area, and the Enterprise Information Environment (EIE) Mission Area.

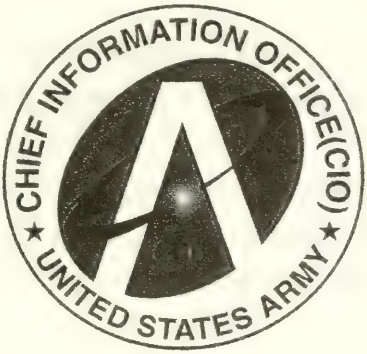
In collaboration with the CIO Executive Board and component CIOs, the DoD CIO manages the EIE Mission Area, which enables the functions of the Warfighter and Business Mission Areas. The EIE Mission Area encompasses communications, computing and core service systems, equipment, and software that provide a common information capability or service for Enterprise use. Domains are subsets of mission areas and represent a common collection of

related, or highly dependent, information capabilities and services. Portfolio management of information capabilities and services within domains improves coordination, collaboration, integration, and consistency of processes and interfaces for information sharing.

In closing, we are putting in place improved and timely information technology investment policies, procedures and architectures that are enabling change throughout the Department, assuring that we have the right capabilities to perform our mission and conduct effective information operations, and eliminating outdated ways of doing business.

Thank you for this opportunity to share our progress with you.

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STATEMENT BY

MR. GARY L. WINKLER
PRINCIPAL DIRECTOR, ENTERPRISE INTEGRATION, CIO/G-6
UNITED STATES ARMY

BEFORE THE
SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL
THREATS AND CAPABILITIES
COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES
SECOND SESSION, 108TH CONGRESS

FISCAL YEAR 2005 NATIONAL AUTHORIZATION ACT, DEPARTMENT
OF DEFENSE'S BUSINESS TRANSFORMATION EFFORTS

MARCH 31, 2004

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THE COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

STATEMENT BY
MR. GARY L. WINKLER

ON FISCAL YEAR 2005 NATIONAL AUTHORIZATION ACT, DEPARTMENT OF DEFENSE'S BUSINESS TRANSFORMATION EFFORTS

Today, we are an expeditionary Army supporting our Nation in the Global War on Terrorism. Our Army is in the midst of massive transformation to create a more agile, deployable, and lethal force. Business transformation is a critical part of this transformation. We must work to achieve seamless "foxhole to factory" continuum of operations to support our deployed forces. Our processes and systems must be transformed to improve timeliness, accuracy, quality, and relevance of information critical to decision-makers at the point of decision.

INTERNAL ARMY INITIATIVES

The Army leadership has embraced business transformation. Among the 17 Army Focus Areas are Resource Processes, Logistics, and the Network. The Army Campaign Plan, now in draft, will go even farther, designating the development of an end-to-end business architecture as critical to Army Operations and Transformation.

We have Army Knowledge Management Strategic and Implementation Plans that will blaze the path for transforming the Army into a Network-Centric, Knowledge-Based Force. We are working to create the Army Enterprise Infostructure through server facility consolidation, web-enabling of IT applications, improving network security, and adopting best business practices.

To facilitate business transformation, the Army has undertaken many initiatives.

1. We have developed an Army Information Technology Registry, to provide a single inventory of Army IT Systems to help us better manage our existing assets.

2. We have developed a comprehensive Capital Planning Investment Management (CPIM) program to prioritize IT spending across the Army functional proponents, to achieve horizontal and vertical integration of IT resources, and to support the continued development of an Army enterprise system in support of the Joint Force. The Capital Planning and Investment Management process' core purpose is to advise the acquisition and execution communities when and where to start, stop, slow, maintain, or accelerate funding of an IT capability based on that capability's value to the Army enterprise and its missions.

3. We established an Army Architecture Integration Cell (AAIC), which is working to tie the DoD Business Enterprise Architecture to

LandWarNet, the Army's portion of the Global Information Grid, and to provide the architectural guidance to transition the Army's business IT portfolio to the joint DoD Business domains. Additionally, we recently established the position of Systems Engineer to work with DoD to ensure sound systems engineering is applied within our programs and to comply with OSD policy.

4. We established the Army Enterprise Integration Oversight Office (AEIOO) in January 2003 to kick-start business process transformation within the functional domains and Major Commands.

5. We have institutionalized the Army Knowledge Online (AKO) as the critical enabler for Army Knowledge Management. It is improving decision dominance by warfighters in the battlespaces, and by business stewards in the Army's institutional organizations. AKO provides single-sign-on to web-enabled applications and uses knowledge management principles and techniques to improve organizational performance. It has fundamentally changed the way the Army applies computing and information technology to its mission and business needs. Through AKO, the Army's Enterprise Portal, we are providing a single point of entry for Army Business. With over 1.6 million active user accounts, nearly one million stored documents, and links to over 500 applications, AKO has been a huge success with our soldiers and civilians and has won numerous industry awards.

6. We have retired more than 100 business IT systems.

THE BUSINESS MANAGEMENT MODERNIZATION PROGRAM.

The Army fully supports DoD's Business Management Modernization Program (BMMP). As that program is currently configured, the six DoD business domains directly govern their Army counterparts. The Army Enterprise Integration Oversight Office works closely with the DoD Comptroller to guide and integrate Army BMMP efforts across the domains. Our Army Architecture Integration Cell (AAIC), is actively involved in the DoD Business Enterprise Architecture (BEA), and works directly with the architects in the Army's business domains to integrate their efforts into both the BEA and LandWarNet, ensuring a delivery of effective and efficient capability to the warfighter.

We are piloting the General Fund Enterprise Business System for DoD's BMMP and will choose a commercial Enterprise Resource Planning system to replace several major legacy systems. The resultant system will comply with the DoD Business Enterprise Architecture and will go a long way towards bringing us into compliance with the 1990 Chief Financial Officer's Act.

In the personnel arena, the Army will be the first Service to completely implement the joint Defense Military Integrated Human Resources Management System (DIMHRS).

As the BMMP produces the joint business framework, we will link the Army capabilities into this joint architecture and ensure Army

business system review processes are in place. We will apply governance and oversight to our acquisition process to ensure that developing systems are BMMP compliant. We will fully support the Deputy Secretary of Defense's recently released IT Portfolio Management Guidance by incorporating it into our Capital Planning Investment Management process. For example, we are already in the process of aligning our IT portfolios along BMMP lines. In this way we can do what is best for the Army and DoD.

CHALLENGES

We see two major challenges as we move towards a transformed Army business environment. First, we know we cannot transform in a vacuum – we must ensure our new systems can interface in a Joint and International environment. Close cooperation with DoD and our sister services is essential.

Second, and most importantly, we are simultaneously an Army at War and an Army Transforming. As we improve our business processes and systems, timing and cost must always be weighed against what is required to support our deployed forces and accomplish our current warfighting missions.

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STATEMENT OF

DAVID M. WENNERGREN

DEPARTMENT OF THE NAVY CHIEF INFORMATION OFFICER

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

SUBCOMMITTEE

31 MARCH 2004

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SERVICES COMMITTEE

Mr. Chairman and distinguished members of the Terrorism, Unconventional Threats and Capabilities Subcommittee, thank you for inviting me to discuss the Department of the Navy's (DON's) vision for leveraging the power of information technology (IT) to transform the warfighting and warfighting support (business) processes of the Navy – Marine Corps team.

TRANSFORMATIONAL VISION

The Department of the Navy has made significant progress in implementing our vision of network-centric warfare and knowledge dominance. Inherent in network-centric operations is the seamless exchange of information from sensors to shooters, to logistics, maintenance and re-supply organizations, breaking down traditional barriers between "tactical" and "non-tactical" IT systems. Transformation of our business processes and systems is driven by, and is inextricable from, our warfighting transformation. The concept of net-centricity requires that authoritative data be available on demand to warfighters, other decision makers, and the supporting business and logistics activities that maintain their ability to fight. Our DON Information Management/Information Technology (IM/IT) Strategic Plan provides the goals and objectives that are guiding us in this transformation of our Naval warfighting team. Through its implementation, we are re-inventing processes, generating efficiencies, eliminating duplicative systems and applications, embracing strong portfolio management/capital planning efforts, and focusing on the core set of systems and applications that will ensure our forces are prepared to meet the demands of the 21st Century warfighting environment. These efforts focus on commercial standards, industry best practices and interoperability to ensure that

our solutions will work effectively with our joint, Allied and Coalition partners, as well as within the Federal Enterprise Architecture guidelines.

CREATING A SEAMLESS IT INFRASTRUCTURE

Net-centric operations require connectivity across our Enterprise to make critical information available when needed to warfighters, other decision-makers and support personnel. Such connectivity requires a seamless infrastructure that replaces traditional disparate, isolated local area networks. Building on the successful framework of the Department of the Navy's Information Technology Infrastructure Architecture (ITIA), the Navy Marine Corps Intranet (NMCI) is being implemented to provide the access, connectivity, interoperability and security foundational to our business system transformation.

The NMCI initiative provides network-based information services through an innovative performance-based contract using state of the market equipment and industry leading service providers. NMCI is a vital component of the DoD Global Information Grid (GIG), interfacing with our deployed networks (IT-21 and MCEN) to serve as the conduit for the exchange of data, information and knowledge.

Our implementation of NMCI has significantly improved our IT enterprise, and will increase productivity through greater knowledge sharing and improved interoperability. A review and certification process for all applications deployed on the network has been implemented to ensure compliance with security and interoperability requirements. The

value of this revolutionary IT initiative has been demonstrated repeatedly. Over the last few years, it has resulted in improved security and continuity of operationsfacilitated training for our military personnel, highlighted opportunities for efficiencies, and provided invaluable support to the deployment of capabilities such as pierside connectivity and Public Key Infrastructure (PKI). NMCI is absolutely crucial to the success of our warfighting and business IT transformation.

We will continue to build on the success of NMCI as we integrate all Naval networks within the DON architectural framework, based on open standards and fully aligned with the GIG and the Business Enterprise Architecture and Federal Enterprise Architecture. Our Naval IT team has made substantive contributions to all of these important architectural efforts and will continue to play an active role in them, as well as in the various national and international standards bodies to ensure that Naval IT solutions are cost-effective and interoperable with our warfighting and business partners.

IMPLEMENTING WEB-BASED BUSINESS IT SOLUTIONS

One of the great benefits of implementing NMCI has been the ability to identify all of the systems and applications in use across the Department. The Department has made great strides in implementing portfolio management. Our Functional Area Managers (FAMs) are employing sound investment management practices in overseeing legacy application reduction and alignment of our IT investments with required operational capabilities. Thus far, by eliminating outdated and duplicative software, our FAMs have reduced the number of approved applications on NMCI by over 89% from 67,000 to approximately

7,000. Over the months ahead, we will go through the migration process to retire legacy applications, identify authoritative databases and improve business processes to optimize operational effectiveness and investment decisions.

We remain committed to the reduction of legacy applications and databases and identification of Enterprise solutions. FAMs have defined the core functions performed within their respective areas of responsibility to ensure that IT capabilities and solutions are aligned with operational requirements. This approach mirrors that of the Federal Enterprise Architecture (FEA) and use of the FEA Business Reference Model (BRM). The FAM-defined core functions are being mapped to both the BRM and to the DoD Business Management Modernization Program (BMMP) Domains to ensure alignment from the DON to the DoD and Federal levels. The significant progress our FAMs have made has resulted in a number of valuable lessons learned on the importance of aligning the IT portfolio from both the functional and the warfighting process perspectives, and we are sharing these lessons with the BMMP Domain Owners. Our rationalization efforts include designation of the Department of the Navy Application and Database Management System (DADMS) as our single authoritative database for applications and databases. As the authoritative source, DADMS will be a key tool in our future investment decisions.

To support migration to a web-centric environment, the DON has begun implementing a Navy - Marine Corps Portal (NMCP) strategy. The NMCP will integrate existing individual portals, providing secure access to all DON IM/IT capabilities through a single

point, further improving efficiency and security, and simplifying access to self-service transactions for our Sailors, Marines and civilians. The Enterprise portal will ease discovery and retrieval of information and provide the entry point to standard Enterprise applications and databases. Our aggressive data management will ensure that net-centric solutions use authoritative data sources for optimal decision-making in both the warfighting and support domains.

Our goal is a web-enabled Navy-Marine Corps team, a mobile workforce with access to secure self-service transactions, via the web, around the world. Our movement to web services solutions will provide for the establishment of single authoritative data sources and will eliminate "stand-alone" and "stove-piped" legacy systems. Key to this transition is the adoption of open standards. The Navy-Marine Corps team continues to be a leader in defining and adopting standards that will facilitate information exchange through technologies such as Extensible Markup Language, or XML. Our XML policy will enable us to securely exchange data across the Enterprise and eliminate costly point-to-point data exchange interfaces. To this end, our policy prohibits the use of proprietary extensions to commercial specifications that would inhibit interoperability.

Our commitment to adopting industry best practices led us to implement four enterprise resource planning (ERP) pilots using commercial-off-the-shelf software (COTS). The benefits of ERP include improved readiness through reduced supply/maintenance cycle times, increased financial accuracy, elimination of redundant applications and databases, enhanced configuration management and reduced IT systems costs. The Naval team has

derived a greater margin of efficiency by adapting our processes to work within the COTS solution, rather than creating costly unique versions to fit our existing processes. The four ERP pilots will now be converged into a single ERP, to provide even greater productivity enhancements and cost efficiencies.

EMBRACING eGOVERNMENT BEST PRACTICES

We have made a concerted effort to embrace eGovernment best practices to transform labor-intensive paper processes into reengineered, efficient, and effective web-based solutions. Aligning with the tenets of the President's Management Agenda, our DON eBusiness Operations Office provides, through its innovative consulting work and pilot projects, substantial efficiencies, resource savings and cost avoidance across every mission area of the Department. The office's groundbreaking work has been recognized across government as a best practice and has been adopted by other Agencies for their own transformation efforts.

I chair the DoD Smart Card Senior Coordinating Group (SCSCG), the DoD-wide alliance for rollout of a single smart card for the Department of Defense. The SCSCG has been instrumental in the successful development of the Common Access Card (CAC) that is being issued to all active duty military, Selected Reserve, government civilian and selected contractor personnel – a total population of approximately four million. This card, with its Public Key Infrastructure (PKI) digital certificates, is crucial to providing the capabilities of digital signature, secure authentication and single sign on, which, taken together, offer even greater opportunities to reduce IT system costs, improve information

security and encourage the adoption of web-based solutions. We will continue to champion the crucial role of identity management as a part of our business transformation, and I have been asked to lead the DoD Identity Management Senior Coordinating Group, which will integrate and align the Department's smart card, PKI and biometrics efforts.

MAXIMIZING THE DEPARTMENT'S BUYING POWER

The Department of Defense Enterprise Software Initiative (ESI), which is co-chaired by the DON, has produced twenty-three software acquisition best practices that are allowing the Department to consolidate software requirements, streamline acquisition and leverage the Department's vast buying power to reduce costs and improve licensing terms and conditions. As an example, the DON was able, through ESI, to consolidate 170 separate contracts for Oracle database products to a single Enterprise license with a discount of over 62% off the GSA schedule price. The ESI initiative is providing significant cost avoidances and putting into place Enterprise agreements that will support our implementation of ERP and web services solutions. We anticipate that our portfolio management processes will identify additional Enterprise licensing opportunities.

FULL DIMENSIONAL PROTECTION

The security of our information, systems, personnel and critical infrastructure assets is fundamental to net-centric operations. The DON's Full Dimensional Protection approach includes three components: (1) protecting knowledge pathways through Information

Assurance (IA) and Defense-in Depth, (2) protecting our Centers of Knowledge through Critical Infrastructure Protection (CIP), and (3) protecting our Knowledge Workers through efforts to protect individual privacy. These efforts will ensure the reliability, availability and integrity of DON information and information systems; protect our people and protect the critical infrastructure needed to defend and secure our mission-critical capabilities.

The Department of the Navy Critical Infrastructure Protection (DON CIP) initiative continues its efforts to identify, prioritize, assess, remediate and protect those infrastructure assets (both cyber and physical) most critical to successful operations plan execution. In partnership with the Assistant Secretary of Defense for Homeland Defense and NORTHCOM, DON CIP is implementing innovative strategies to enhance mission assurance. The Naval integrated vulnerability assessment (NIVA) brings together already existing and robust Navy and Marine Corps capabilities to conduct coordinated, comprehensive assessments of mission reliance on key infrastructure within a specific region (cyber and physical, DON-owned or commercially owned). In 2003, the Department conducted regional NIVAs in the Pacific Northwest and Hawaii, to identify vulnerabilities and assist local commanders in developing appropriate remediation strategies. Applying assessment best practices enables immediate incorporation of specific recommendations and coordination of regional emergency activities. Identifying commercial dependencies and working with local and state governments promotes understanding and coordination, reduces duplication of investment and provides better continuity in emergent situations. We will press forward with our program for this critical

work while continuing to coordinate and exchange information with corresponding Federal and state agencies.

STRONG INVESTMENT MANAGEMENT AND GOVERNANCE

We have taken a number of steps to both strengthen IT governance and put into place the necessary tools to do effective investment management. Our improved IM/IT governance structure has strengthened, aligned, and integrated our IM/IT efforts across the Navy and Marine Corps, ensuring Department-wide alignment of IM/IT efforts with warfighter priorities. The designation of Deputy CIOs for the Navy and Marine Corps has been particularly helpful, aligning both IT policy and execution, and CIO and C4 responsibilities. Similarly, reporting relationships between Echelon II command Information Officers and the Deputy CIOs has helped to ensure that command IT initiatives stay aligned with the Department's IT vision and architecture.

The Navy Sea Enterprise Board of Directors, the Marine Corps' Information Technology Steering Group and the Department's FAM Council embody the senior level leadership exercising effective oversight and management of IT investments. We have put into place several other innovative processes to ensure the alignment of IT investment decisions. Our IT investment priorities are now incorporated into programming guidance for the POM, and in budget execution and acquisition guidance. Together, these controls leverage comptroller and contracting personnel across the Department to monitor and ensure prudent IT investment decisions are executed. Further governance is achieved through our review of IT programs for compliance with Clinger-Cohen Act requirements

and certification for network standards. The Net-Centric Enterprise Services checklist has provided an additional tool for assessment of our programs' compliance with GIG interoperability requirements. All of these efforts have helped to focus our budget requests on transformational activities. We are at a critical phase in our transformation process, and the IT funding in our FY 05 budget is crucial to ensure that we can deliver the information dominance advantage that we have begun to build for our warfighters.

The Navy - Marine Corps team has made significant progress in achieving the transformational net-centric capabilities demanded by our defense strategy and today's operational environment. Cumbersome legacy systems of the past are being replaced with re-engineered web-based solutions. Industry standards and the use of commercial-off-the shelf technology have replaced the government-developed solutions of the past. We are re-engineering our business processes to leverage technology to deliver warfighting capability more effectively. Smart buying practices are in place, and senior Navy and Marine Corps leaders are actively engaged in IT investment management. These efforts are integrated with the rest of the Department of Defense and will ensure the interoperability necessary to provide our contribution to the GIG, the Defense Business Management Modernization Program and the Federal Enterprise Architecture. The DoD IT governance team is working closely together to deliver the vision of net-centric warfare and knowledge dominance. We have made great strides thus far, and I am confident that we have the leadership, guidance and processes in place to carry us the rest of the way. The opportunities for the Department and the Nation are tremendous.

Mr. Chairman, members of the Subcommittee, I thank you again for allowing me the opportunity to speak to you today. We greatly appreciate your support of our information technology initiatives to meet the challenges we face and I look forward to working with you on these important initiatives. I am happy to answer any questions that you may have about the Department of the Navy's information management/information technology initiatives.

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON ARMED SERVICES

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: BUSINESS TRANSFORMATION EFFORTS

STATEMENT OF: MR. JOHN M. GILLIGAN
CHIEF INFORMATION OFFICER
UNITED STATES AIR FORCE

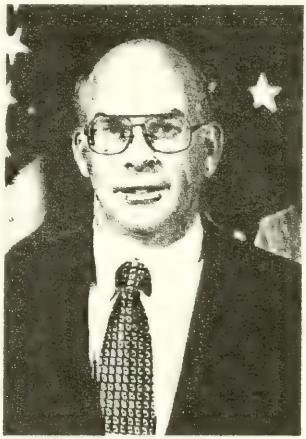
MARCH 31, 2004

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BIOGRAPHY

UNITED STATES AIR FORCE

JOHN M. GILLIGAN



John M. Gilligan, a member of the Senior Executive Service, is the Air Force Chief Information Officer, Washington, D.C. As the Air Force CIO, Mr. Gilligan is the principal adviser to the Air Force leadership on information management, business processes and information technology standards. He leads the Air Force in creating and enforcing IT standards, and promoting and shaping an effective strategic and operational IT planning process. He also leads the Air Force in acquiring IT systems. Mr. Gilligan works with Air Force management to ensure the conduct of IT processes is timely, cost-effective, follows all applicable statutes, regulations and policies, and provides the best available capability consistent with requirements and within available budget resources.

Prior to joining the staff of the secretary of the Air Force, Mr. Gilligan served as the CIO for the Department of Energy. In this position, he developed and directed the IT management strategies, policies and practices for the department. These responsibilities included year 2000 readiness; information protection; strategic planning; standards in computing, networking and security; establishment of system and information architectures; and corporate information technology, capital planning and investment.

EDUCATION

1973 Bachelor's degree in mathematics, Duquesne University, Pittsburgh, Pa.
1976 Master of science degree in computer engineering, Case Western Reserve University, Cleveland, Ohio
1984 Master's degree in business administration, Virginia Polytechnic Institute and State University, Blacksburg

CAREER CHRONOLOGY

1. 1975 - 1977, systems analyst, System Development Corp., McLean, Va.
2. 1977 - 1978, technical staff member, Defense Communications Division, International Telephone and Telegraph, Nutley, N.J.
3. 1978 - 1981, branch manager for computer security projects, System Development Corp., McLean, Va.
4. 1981 - 1984, computer scientist, Worldwide Military Command and Control System, Information System Joint Program Office, McLean, Va.
5. 1984 - 1987, Deputy Director, Worldwide Information System Program Office, Hanscom Air Force Base, Mass.
6. 1987 - 1990, Director of Studies and Analysis, Air Force Communications Command, Scott Air Force Base, Ill.
7. 1990 - 1991, Director of Software Architecture and Policy for Command, Control, Communications and Computers, Deputy Chief of Staff for C4, Headquarters U.S. Air Force, Washington, D.C.
8. 1991 - 1992, Director of Resources, Deputy Chief of Staff for C4, Headquarters U.S. Air Force, Washington, D.C.
9. 1992 - 1998, Air Force Program Executive Officer for Battle Management, the Pentagon, Washington, D.C.
10. 1998 - 2000, Chief Information Officer, Department of Energy, Washington, D.C.

11. 2000 - 2001, Principal Deputy Assistant Secretary of the Air Force for Business and Information Management, and Deputy Chief Information Officer, Washington, D.C.
12. 2001 - present, Air Force Chief Information Officer, Washington, D.C.

AWARDS AND HONORS
1991 Meritorious Civilian Service Medal
Senior Executive Service bonus awards
1995 and 2000 Presidential Meritorious Executive Rank Award
1998 Distinguished Civilian Service Medal, Joint Chiefs of Staff
1998 Presidential Distinguished Executive Rank Award

PROFESSIONAL MEMBERSHIPS AND ASSOCIATIONS
Institute of Electrical and Electronics Engineers
Armed Forces Communications and Electronics Association

(Current as of January 2002)

Mr. Chairman, distinguished members of the Subcommittee, I thank you for this opportunity to discuss the Air Force efforts and plans in the vitally important area of business modernization and transformation.

Overview

Over the last four years the Air Force has been actively transforming our business operations to enhance support to our warfighting operations. We are leveraging the power of information technology to increase the effectiveness of our operational capabilities, in many cases permitting us to use our legacy systems in ways that were never intended. Critical to the Air and Space Expeditionary Force construct, our method of supporting overseas commitments by rotating operational forces from fixed bases, is the ability to rapidly deploy combat forces and equipment worldwide, while leaving support functions at home base. We link forward combat personnel to home bases through robust, global information systems. Likewise, many personnel remain at their home station and support the overseas operation, in effect, permitting them to "telecommute" to the battle. Moving information rather than people reduces the airlift and logistics required as well as the forward footprint and cost of operations. It also improves decision-making timelines associated with expeditionary missions to rapidly leverage our best experts in a cooperative manner. That global capability can only be achieved by employing a net-centric environment both at home and at forward bases.

As an example of this transformation, the Air Force has effectively used information technology to permit Air Combat Command, Air Mobility Command, United States Air Forces in Europe, and Pacific Air Forces to consolidate their supply functions into consolidated Regional Supply Squadrons. In the past, supply functions had to be done at each base. Today,

a single web interface is giving us access to worldwide supply information 24/7 making this process location independent even though we continue to rely on the legacy Standard Base Supply System. This centralization of common supply processes has proven to be effective in cost and performance providing greatly enhanced analytical tools and yielding a savings of 570 people.

The Air Force has also implemented processes for managing information technology investments. Our approach ensures that our investments align with our highest priority requirements, and meets the requirements of the DoD and the Office of Management and Budget.

In my testimony today, I will highlight how we are leveraging information technology to improve our combat and business support operations in support of our Air Force, joint, and coalition warfighters.

Transform our Business Support Processes and Systems to Support the Warfighhter

The Air Force has been conservative in moving to adopt modern commercial systems such as Enterprise Resource Planning (ERP) Systems. In part, our reluctance has been from failures in the late 1990s to successfully deploy commercial systems. As a result, I have directed that we will closely monitor commercial and government ERP efforts, learn from the lessons of other organizations, and follow the lead of others in adopting ERP. As such we are monitoring the Army, Navy, and Defense Logistics Agency efforts, as well as similar efforts, in NASA and the commercial sector.

Despite our conservative approach to ERP adoption, we have aggressively moved forward to leverage modern web and Internet technologies to dramatically improve our business processes -- in most cases relying on the data in our legacy systems. To posture ourselves for transformation to future DoD and Air Force Enterprise Resource Planning tools, we have web-enabled our legacy applications and positioned our data in a robust Enterprise Data Warehouse.

The Air Force has also developed a common technical framework for providing warfighters and supporting activities with timely, accurate, and trusted combat support and business information. The technical framework has been developed under our Air Force portion of the DoD Global Combat Support System (GCSS) program. Within GCSS, the Air Force Portal is the standard user interface to all Air Force support data and functions. The Air Force Portal includes personalized, role-based access and single sign-on to information and capabilities within combat support and business areas.

Today through the Air Force Portal, users can access data and capabilities tailored to their mission/job. There are over 70 logistics services and tools, 100 self-service applications within personnel, finance, base services, and health systems that Airmen may access with a single login, and more than 300 information links to other organizational and quality of life content. Examples of these items include access to aircraft maintenance status--allowing the commander to have ready access to aircraft availability; transportation/vehicle management; military and civilian personnel records--Airmen assigned or deployed anywhere in the world have online access to their personnel records which reduces time spent away from the job waiting in line at their local personnel flight; the military assignment system; Air Expeditionary

Forces (AEF) information--up-to-date information about your deployment status and rotation information; and personnel pay statements. Collaboration and communication across geographic locations in-garrison and deployed are provided by an online communities of interest and an instant messaging capability.

A part of the technical framework is a common Air Force-wide Enterprise Data Warehouse. Incrementally, we are moving our data that was in or legacy systems to the Enterprise Data Warehouse. The Data Warehouse provides an integrated platform for storing, processing, and managing enterprise data. With the data warehouse, Airmen and commanders can more rapidly access authoritative information and perform ad hoc queries. Additionally, our Instant Messenging capability provided on the Air Force Portal proved a critical link back to home stations to check on the status of parts, forces and other critical information in a limited communications environment. As a real life example from Operation Iraqi Freedom, a sergeant deployed to Southwest Asia experienced difficulty contacting the Air Combat Command Regional Supply Squadron to obtain updated status on a critical supply order. The Air Force Portal Instant Messenger capability provided him another option for linking to the Regional Supply Squadron. This capability allowed him to communicate online directly with the Air Combat Command Regional Supply Squadron to check on the status of fighter assets and provide them to his commander. In addition, his role as a Supply Specialist on the Air Force Portal provided him access to Logistics and Supply Command and control information and access to reports, Fleet Asset Status, and Integrated Logistics System-Supply. Instant Messenger also became a crucial morale tool during Operation Iraqi Freedom, allowing Airmen unable to get to the morale tent during duty hours to communicate with their families from

forward locations, as well as with other Airmen across the globe. The Air Force Instant Messenger provides additional communications options for work and morale purposes.

The Portal is increasingly being used across the Air Force. The number of registered Portal users has grown to over 300,000 with an average of over 1,500,000 pages served up daily.

Several years ago, with the objective of leveraging commercial sector economies and redeploying our critical IT skills against the warfighting mission, we began consolidating the operations and support of our Air Force base networks and computers. This consolidation addressed email systems, web sites, file storage and print servers, base networks, and desktop support. Prior to the consolidation, we would have up to a dozen different networks and email systems at each base. Today, our consolidation of servers and networks at our fixed bases is over 90 percent complete and consolidation of functional applications is 75 percent complete. We have one integrated network and single email, web and file service for the base. Our infrastructure consolidation efforts over the past two years have eliminated over 4,000 servers and produced man-hour savings along with $200+million/year cost avoidance. The cost savings have permitted us to keep our operations and support cost flat. The productivity improvements resulting from network server consolidation have freed up the equivalent of 1,000 military personnel to augment stressed military career fields. We have achieved enhanced reliability and security due to this consolidation.

Leveraging these gains and seeking to maintain the momentum, in December 2003 the Air Force Secretary and Chief laid out the next set of infrastructure consolidation initiatives that focus on regional and Air Force-wide consolidation. The continued pursuit of these goals will move the Air Force closer towards an integrated, consistently managed Air Force enterprise structure, which will allow trusted, accurate information to be provided to the warfighter in a more timely fashion. Moreover, it will permit cost efficiencies that will allow us to deliver additional capability at the same or less cost.

Governance and Efficiencies

The Air Force is working hard to provide rigorous oversight for our IT investments. To accomplish this oversight, the Air Force has implemented a comprehensive information technology portfolio management process. The portfolio management process provides visibility into information technology expenditures and enables control and prioritization of IT resource requests. In addition, the process provides the necessary budget details to build and clearly articulate the Air Force information technology budget requests to OSD, OMB, and Congress.

CIOs in our major commands and functional areas are responsible for implementing the IT Portfolio Management processes to manage their resources. Integrated assessments of the major command and functional portfolios are accomplished at the Air Force CIO level. Each program must also produce a detailed business case, which is graded by my office. Programs receiving low scores results in placement on a "watch list" and funding is at risk until improvements are made. During the FY04 President's Budget cycle, we reduced funding for 34 Air Force programs due to low scores on their business cases. We are also providing these

business cases to the Congressional committee staffs for their use in understanding our IT programs.

One of our success stories in our portfolio management efforts is that we've been able to hold the line on spending in the Combat Support/Business areas of the portfolio. For the past four years, our spending on Combat and Business Support has remained at approximately $600 million, which in the FY05 President's Budget represents only 9 percent of our total spending on information technology. This is down from about 11 percent in FY04. We also note that our spending on business and combat support IT is significantly less, almost half, of similar organizations within DoD. We believe that our robust portfolio management is a significant contributing factor. In addition, Air Force Portfolio management is linked and will feed into DoD's new Portfolio management process.

In FY03, the Air Force also stood up the Air Force IT Commodity Council (ITCC) to leverage the bulk purchasing power of the Air Force. The Council is co-chaired by the Air Force CIO and the Air Force Procurement Executive. The ITCC developed and implemented an Air Force enterprise strategy for desktops and laptops in 2003 that combined requirements from multiple organizations to allow the Air Force to fully leverage the Air Force's buying power. By combining their PC buys, we saved over $4 million and increased our buying power by 22 percent. In FY 04, the Air Force is applying this commodity buying approach to our annual desktop and laptop purchases (over $200+ million/year). Now that we've proven this industry best practice as a viable approach for the Air Force, the ITCC is developing enterprise-wide strategies for other commodities such as network devices, computer peripherals, and

commercial software to help achieve efficiencies in the areas of IT acquisition, installation, maintenance and disposal.

Future

The Air Force is leveraging enterprise architecture to analyze and guide our transformation efforts. Enterprise architectures are aligned with the DoD Business Enterprise Architecture (BEA) and the Global Information Grid Architecture. The Air Force has also adopted the Federal Enterprise Architecture framework, reflecting the DoD standards and extended the Government-wide and DoD architectures details to reflect integration with Air Force unique structures and processes.

The Air Force Business Enterprise Architecture (BEA) is the overarching business architecture that addresses both combat support and business activities. The Air Force BEA is linked to the DoD BEA and focuses on the activities and processes that provide business support to the Air Force warfighters. The Air Force BEA also gives the Air Force the ability to define, evaluate, and improve these processes in a cross-functional environment. Programs being developed under the DoD Business Management Modernization Program (BMMP) such as the Defense Enterprise Accounting and Management System (DEAMS) and the new Defense Integrated Military Human Resource System (DIMHRS) have been reflected in our Air Force BEA. We are using our architecture efforts to ensure that business processes and information will comply with DoD business standards as well as meet warfighter needs.

In January, the Secretary and Chief of Staff of the Air Force chartered a new governance structure, the Commanders' Integrated Product Team (IPT) to oversee the Air Force business modernization efforts. The Commander's IPT consists of our Air Force Functional leads (Assistant Secretary and Deputy Chiefs of Staff) as well as Vice Commanders from the field. To ensure that the business modernization focuses on warfighter needs, the Commander's IPT is led by our Air Force Deputy Chief of Staff for Warfighting Integration. As CIO, I am the vice chair of this effort. All of our business modernization funding and efforts will be overseen by this governance structure. The Commanders' IPT will guide and integrate the transformation of processes and systems supporting Air Force business and combat support areas in order to meet OSD BMMP objectives, as well as to provide Joint and Air Force Commanders and Airmen with effective business support products, services, and information.

The Air Force is also lead for a DoD financial modernization effort called the Defense Enterprise Accounting and Management System (DEAMS). The current USAF accounting system is circa 1960 and needs immediate replacement because of obsolete technology, non-compliance with the Chief Financial Officer (CFO) Act and its excessive operations and maintenance costs. OSD has approved the piloting of a modern Commercial Off-the-Shelf (COTS) financial management package at US Transportation Command and the Air Force Mobility Command as part of the Business Management Modernization Program. The goals of DEAMS include providing reliable, accurate and timely financial data for decision-makers and meeting the requirements of the Business Management Modernization Program architecture, consistent with DoD Business Enterprise Architecture (BEA). DEAMS will provide one system to process and record all budgetary, accounting, and vendor pay transactions. This

effort will replace eight legacy systems including Airlift Services Industrial Fund Computer System and Air Force General Accounting and Finance System. We plan to have the pilot up and running in a year. In subsequent years, and not later than FY07, we will roll out the DEAMS program to other Air Force sites in support of the CFO Compliance Act.

Summary

In summary, our investments are planned and focused on providing warfighting capability to our Commanders and Airmen. Air Force investments in information technology, including those in Combat and Business Systems, are made to satisfy materiel shortfalls in capability and any reduction in funding will severely impact delivering operational capabilities to the warfighter. Our transformation efforts are sound and rely on architectures, portfolio management processes, and oversight structures like the Commanders' Integrated Product Team and technological initiatives like our integrated Global Combat Support System framework and Air Force Portal. This foundation and these efforts help poise the Air Force to move forward with modernized processes and systems like DEAMS to be processed under the auspices of the BMMP program. To date, we have made considerable and measurable achievements; however, we also recognize the challenges that lay ahead of us. We appreciate the support we received from Congress to date with respect to these programs, and we request your continued support.

I appreciate the opportunity to address this Subcommittee. This concludes my testimony.

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UNTIL RELEASED BY
THE SUBCOMMITTEE OF
THE HOUSE ARMED
SERVICES COMMITTEE

STATEMENT OF

BRIGADIER GENERAL JOHN R. THOMAS

DIRECTOR, COMMAND, CONTROL, COMMUNICATIONS, AND COMPUTERS

HEADQUARTERS, UNITED STATES MARINE CORPS

AND

DEPARTMENT OF THE NAVY

DEPUTY CIO FOR THE UNITED STATES MARINE CORPS

BEFORE THE

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

OF THE HOUSE ARMED SERVICES COMMITTEE

CONCERNING

DOD BUSINESS IT TRANSFORMATION

ON

MARCH 31, 2004

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THE SUBCOMMITTEE OF
THE HOUSE ARMED
SERVICES COMMITTEE



Brigadier General
John R. Thomas
Director for Command, Control, Communications, and Computers (C4), and Chief Information Officer (CIO) for the Marine Corps

Brigadier General Thomas is the Director for Command, Control, Communications, and Computers (C4) for the United States Marine Corps, the Chief Information Officer (CIO) of the Marine Corps and Commander of the Marine Corps component to the Joint Task Force for Computer Network Operations.

Brigadier General Thomas was commissioned a second lieutenant in May 1973. He is a graduate of Appalachian State University with a Bachelor of Science Degree, Prairie View A&M University with a Master in Business Administration, and Naval War College with a Master of Science in National Security and Strategic Studies. His military schools include the Basic School, Advanced Communications Officer School, United States Marine Corps Command and Staff College, and the College of Naval Warfare.

His previous command assignments include:

- Commanding Officer, 1st Surveillance, Reconnaissance, and Intelligence Group, I Marine Expeditionary Force
- Commanding Officer, 7th Communications Battalion, III Marine Expeditionary Force
- Commanding Officer, Communications Company, 3d Force Service Support Group
- Platoon Commander

His previous staff assignments include:

- Deputy Director, Command, Control, Communications, and Computers HQMC
- Director, Programs Division, Programs and Resources Department HQMC
- Assistant Chief of Staff G-6, Marine Forces Pacific
- Assistant Chief of Staff G-6, First Marine Expeditionary Force
- Chief, Command Centers Support Division, Command, Control, Communications & Computers Directorate (J6), Joint Staff
- Communications Support Officer, National Military Command Center
- Program Coordinator, Space, Command and Control Directorate, Chief of Naval Operations
- Marine Officer Instructor, Prairie View A&M University

Brigadier General Thomas' awards include: Legion of Merit, Defense Superior Service Medal, Meritorious Service Medal with gold star, Navy and Marine Corps Commendation Medal with gold star, National Defense Service Medal with two bronze stars, and Humanitarian Service Medal

I. INTRODUCTION

Chairman Saxton, Congressman Meehan, and distinguished Members of the Terrorism, Unconventional Threats and Capabilities Subcommittee, thank you for this opportunity to appear before the committee to discuss the Marine Corps Business IT Transformation and our involvement in the Department of Defense Business Management Modernization Program (BMMP). Our business systems are critical to the efficient management of the Marine Corps and for the well-being and welfare of our Marines. We believe the tenets of BMMP directly align with our Warfighter mission. As we transform our legacy business systems into integrated enterprise solutions we are creating efficiencies, which frees resources that in turn improve our Warfighting capability.

II. BMMP, DEPARTMENT OF THE NAVY AND MARINE CORPS ALIGNMENT

BMMP presents an evolving functional process and system consolidation effort that includes differing degrees of maturity within each of the BMMP domains. The primary manner we have engaged BMMP is by responding to BMMP guidance and requirements in a decentralized manner using our domain representatives to directly interact with their BMMP Domain counterparts. We have primarily focused our limited headquarters CIO resources on interacting and coordinating with BMMP's Business Modernization and Systems Integration (BMSI) office.

As CIO I am committed to value oriented business transformation. From a Marine Corps perspective BMMP provides us the ability to better understand and improve our business processes, and the applications and databases that support those processes, within the context of the entire DoD business transformation. The Marine Corps strategy to achieve business

transformation leverages those system and data consolidation efforts started before BMMP existed, with newer business initiatives designed to align within emerging DoD and DoN guidance. While we believe we are in the best position properly articulate the required capabilities for our Service, BMMP will provide us the ability to leverage business systems and capabilities developed outside the Marine Corps that meet our needs.

Among the Marine Corps business transformation goals, are alignment with and active participation in DoD and DoN efforts while improving service to the Marine Corps. The Marine Corps has been involved for many years in the careful development, oversight, and governance of our business automated information systems. In certain cases the Marine Corps initiated efforts served as a prelude to BMMP and therefore allowed us to be more responsive to BMMP guidance.

Fortunately our work associated with transitioning to the Navy Marine Corps Internet (NMCI) requires the Department of the Navy to develop a cross-functional application portfolio management process and a repository to support portfolio management and application rationalization. In concert with the Navy we have established a group of 24 Functional Area Managers (FAMs) and Functional data Managers (FDMs) and assigned every application and database within the Marine Corps to one of these managers. The FAMs are populating the Department of Navy Application and Database Management System with only authoritative applications and databases. This forms the foundation of our IT investment and portfolio management process and provides an accurate inventory of financial and financial feeder systems as well as the functions/processes these systems support.

III. MARINE CORPS BUSINESS TRANSFORMATION EFFORTS

As CIO, I provide the Enterprise IT Architecture framework, the technical infrastructure guidance, and support to the functional representatives that lead our IT process transformation efforts. Let me provide some examples.

Accounting and Finance: The Marine Corps Standard Accounting, Budgeting and Reporting System (SABRS) is 75% compliant with the BMMP proposed DOD Standard Accounting Classification Structure (SACS) and we are working to achieve the remainder. SABRS is meeting all of the BMMP core mandates of standard general ledgers, Federal Financial Management Improvement Act requirements, and undergoing Joint Financial Management Improvement Program certification testing.

Acquisition: The Marine Corps is actively engaged in Business Process Modeling workshops, via participation in the Joint Acquisition and eBusiness Oversight Body, the centerpiece of the Acquisition Domain led by OSD-ATL, Defense Procurement and Acquisition Policy. In addition, the USMC supports DoD efforts to identify and rationalize Acquisition systems aligned with the BMMP Strategic Vision and Architecture.

Human Resource Management: Our Human Resources (HR) systems include manpower, training, recruiting, and force structure systems that are controlled through service level governance processes. We carefully scrutinize and rationalize our HR applications while simultaneously consolidating personnel administration functions at increasingly higher levels. The Marine Corps is currently evaluating Defense Integrated Military Human Resource System (DIMHRS) functionality against capabilities provided by our current personnel and pay system; the Marine Corps Total Force System (MCTFS). MCTFS is the only fully integrated personnel and pay system supporting active and reserve forces within DoD. It is aligned to our business

practices, devoid of administrative redundancies, requiring minimal human interaction to sustain personnel and pay readiness.

DIMHRS is the proposed solution for the Human Resources Management domain. Functional "deltas" with Marine Corps HR systems and processes will have to be bridged by technical enhancements or by developing new systems and/or potentially increasing the number of Marines assigned to HR positions. This is particularly true where DIMHRS business process reengineering does not result in business process improvement or sustain current efficiencies delivered by existing systems. This is both costly and inconsistent with BMMP objectives. Simply stated, DIMHRS must meet Marine Corps capability needs before it can be adopted for use.

The Total Force Administration System (TFAS) is representative of the Corps' reengineering efforts in the area of administration. TFAS provides a web-based, virtually paperless self-serve capability for all Marines via the web portal, Marine On Line (MOL). This year, we will increase our Marine's ability to execute self-service transactions and automate many unit capabilities such as leave, morning reports, and promotions. In a tremendous advance, Marines at all levels will access Marine On-Line to view information on themselves and the Marines in their charge. Over the next few years, our strategy is to consolidate the functionality of multiple legacy, stove-piped systems under TFAS. As a result, we see TFAS/MOL as an advanced portal capability that provides a reduction in legacy support and a consolidation of authoritative data. Other efforts include the deployment of the Defense Travel System, a seamless, paperless, temporary duty travel system that meets the needs of travelers, commanders, and process owners. It will reduce costs, support mission requirements, and provide superior customer service.

We are also engaged in a cooperative partnership with the Joint Requirements and Integration Office and the Joint Program Management Office to ensure uninterrupted personnel and pay support to all Marines and to share with other DoD agencies development and maintenance lessons learned.

Installations and Environment: We are standardizing Geographic Information Systems (GIS) and maintenance management systems thus reducing the number of separate, isolated, simultaneous instances of certain systems. Consequently we are better positioned to manage and maintain our installations, real property, and the support staffs that keep them functioning. The Marine Corps facilities management community has been very aggressive in reducing legacy applications and standardizing business systems across the Marine Corps. In facilities maintenance management alone, the Marine Corps is replacing 34 installation specific systems with one web-based enterprise level system, thus reducing sustainment costs while providing a single authoritative information source. Consolidation of software licensing and centralized administration will save $1.5M annually. Last month, the Marine Corps eliminated five cost engineering software products by working with the Navy to standardize cost engineering on a Departmental level.

Logistics: Many of our financial feeder systems exist in our logistics functional area. Our logistics FAM has developed an integrated logistics initiative designed to eliminate duplication, institutionalize modern supply and value chain management techniques, and to replace the numerous stovepipe automated information systems with web-based order management systems. To date, 36 Marine Corps logistics systems have been officially retired, with additional 20 systems identified for retirement.

Strategic Planning and Budgeting: The Marine Corps has participated in the Strategic Planning and Budget workshops to map the "as is" and develop the "to be" processes that could lead to new DoD business practices.

Our Activity Based Information System (ABIS) leverages financial and functional data in a shared data environment, creating a total cost and performance management system. This has enabled fact based decision making, effective resource management and provided for justification in the POM process. Use of ABIS primary data has allowed the USMC to realign significant dollars to support warfighting capabilities.

MCEITS strategy for migration of legacy business systems: The CIO's role is to align the Enterprise IT Portfolio and architecture to support this modernization effort. Our initiative for Marine Corps transformation is the Marine Corps Enterprise Information Technology Services (MCEITS) framework. MCEITS is our conceptual framework for realigning, collapsing, and consolidating our physical IT environment, enabling a fusion of data and processes. It will support all FAMs and the applications they need to conduct their business by becoming the streamlined physical implementation of the portfolio being managed by each FAM. It provides us with a flexible, robust IT environment that integrates applications and data, and provides the common IT infrastructure for FAMS working with the BMMP domain owners as they unfold their initiatives.

VI. CONCLUSION

The Marine Corps has been able to comply with the Department's business transformation requirements in a proactive manner by aligning ongoing Marine Corps initiatives with department goals, and when no ongoing effort was in place, initiating one. In some areas we are

ahead of BMMP while maintaining the spirit of BMMP. The Marine Corps strongly believes that it is in the best place to judge what capabilities and systems are required to support our contributions to the National Defense. The services should retain their Title 10 authority for business systems. It should not be transferred to BMMP domain owners.

Please know that the Marine Corps views your substantial investment in Business Transformation with gratitude. We are concerned that any decrease in funding would result in delays and inefficiencies that will cause greater business transformation costs in the long term, and delay our ability to serve the Warfighter in a NetCentric environment. Mr. Chairman and members of the Terrorism, Unconventional Threats and Capabilities Subcommittee, thank you again for your steadfast support, and for this opportunity to appear before the committee to discuss how the Marine Corps is evolving our IT architecture and capabilities in support of business IT transformation for the 21st Century.

Testimony of Thomas Burlin
Partner, U.S. Federal Industry and Global Government Leader
IBM Corporation

Submitted to the House Committee on Armed Services
Subcommittee on Terrorism, Unconventional Threats and Capabilities
March 31, 2004

Mr. Chairman and Members of the Subcommittee, I am Thomas Burlin, Partner, U.S. Federal Industry and Global Government Leader for IBM. IBM appreciates the committee's invitation to talk about Business Modernization efforts at the U.S. Department of Defense (DoD). We are pleased to submit this written testimony for the committee's record.

Team IBM

Leading the Defense Department's Business Management Modernization Program (BMMP) is Team IBM, comprised of IBM and main subcontractors KPMG, Science Applications International Corporation, Computer Sciences Corporation and American Management Systems, with small-business contractors Infolynx, Alliance International Corporation, Popkins, Spherion and Vertex Information and Computer Consulting Services. In total, approximately 250 professionals from these organizations are working on the program.

IBM's Business Transformation

The committee has requested basic information about IBM's own business transformation. We are pleased to share that story and show its obvious relevance to the business modernization efforts currently in progress at the DoD.

IBM has undergone a major financial, competitive, and cultural transformation since 1993. That year, a new vision took hold within IBM that sought to refocus on the customer and the marketplace as the measure of success, and recreate the company as an integrator that could translate technology into business value.

The need for this transformation was self-evident: In 1993, our stock price hit a 20-year low. We posted an $8.1 billion loss. We failed to recognize fundamental changes in the marketplace and saw our profit margins evaporate. IBM operated 24 separate business units, which together sold more than 5,000 hardware products and 20,000 software products. Efforts at cost-cutting and efficiency were dampened by our size and complexity of our operations.

IBM's transformation began with a fundamental examination of everything the company was doing and the processes by which the enterprise was being run. Cutting costs and driving common processes and systems across the entire global IBM organization became the key to going to market as One IBM. Among our efforts:

- Internal Business Processes -- By consolidating and focusing on our internal business processes, IBM improved our time-to-market by 75 percent. This saved more than $9 billion.

- Software Applications -- Prior to our transformation efforts, IBM ran more than 16,000 unique software programs. Now that number is less than 6,000.

- Infrastructure -- Within IBM, we consolidated 155 data centers, 128 CIO positions, 31 private networks and hundreds of different PC configurations into: 12 data centers worldwide; one network; four PC configurations; and one CIO.

These were but a few of our internal accomplishments.

As a recent IDG case study put it, "Since IBM embarked on its business transformation nearly a decade ago, the company has gone from a collection of siloed business units to an agile and integrated enterprise focused on the customer."

IBM has seen direct business results from this transformation:

- From 1994 through 2003, IBM's e-business transformation efforts have realized $17.4 billion in cost savings from $6.4 billion in investment.

- From 1993 to 2003, IBM reduced IT spending by 31 percent, while building our IT infrastructure to support new applications and processes, additional workload volume, enhanced functionality and acquisitions.

- We have continued to move procurement to the Internet, now purchasing some 95 percent of goods and services electronically, generating more than $400 million in cost avoidance.

Now we have taken our transformation a critical step further: creating the e-Business On Demand model that we believe will be the driving force in global business in the near future and beyond.

An on-demand business is an enterprise whose business processes -- integrated end-to-end across the company and with key partners, suppliers and customers -- can respond with agility and speed to any customer demand, market opportunity or external threat. An on-demand business:

- Is **responsive** -- responding almost intuitively to dynamic, unpredictable changes in demand, supply, pricing labor, competitors' moves, capital markets and the needs of its constituencies -- customers, partners, suppliers and employees.

- Uses **variable** cost structures and adapts processes flexibly. This flexibility will enable it to reduce risk and to do business at high levels of productivity, cost control, capital efficiency and financial predictability.

- Is **focused** on its core competencies, its differentiating tasks and assets, while tightly integrated strategic partners manage selected tasks -- from manufacturing, logistics and fulfilment to HR and financial operations.

- Is **resilient** enough to manage changes and threats -- from computer viruses, to earthquakes, to spikes in usage -- with consistent availability and security.

IBM believes that as governments across the world, including the United States and its agencies, adopt and embrace the on-demand model, our leaders will be enabled to see and manage their agencies as an integrated whole, central to the transformation process.

BMMP Background

In April 2002, the U.S. Department of Defense (DoD) contracted with IBM to develop a framework to transform and modernize the way DoD conducts all of its business operations, to include strategic planning and budgeting, financial management and accounting, installations and environment, human resources, logistics, and procurement. This framework has four main keystones: 1) A "to-be" DoD Business Enterprise Architecture; 2) A capabilities driven Transition Plan; 3) Portfolio management and system assessment; and 4) A transformation governance and champion organization. Developing this framework has been and remains a massive undertaking involving over 2,000 information systems and many thousands more business processes.

The "Business Enterprise Architecture" (BEA) is the executable reference model of the Enterprise Business and Technology Strategy. The BEA model is described in terms of the integrated views that represent the enterprise end-to-end operational processes and activities, information exchanges and the corresponding systems and technology requirements. The BEA model is executable because it provides a clear template for programs and solutions that enable the end-to-end missions of DoD Services and Agencies. The operational results of these BEA compliant programs and solutions will collectively achieve the Enterprise strategic goals. The BEA model is executable because it facilitates the development of a Transition Plan based on BEA derived operational capabilities. The BEA model is executable because it enables portfolio management and system assessment in support of the Transition Plan.

With over $1 trillion in assets, an annual budget of $378 billion and 3 million military and civilian employees, DoD may be the world's largest and most diversified enterprise. Therefore, the DoD's business enterprise architecture is the largest, most complex and most pervasive business enterprise architecture developed to date, either in the public or private sectors.

Historically, the Department's Services and agencies have used many individual procedures to conduct their work, as well as a multitude of systems to support those procedures. Most of these business processes have focused primarily on the Services' and agencies' own operations, and frequently lack the ability to communicate or share data within the Department. This has placed limits on DoD's ability to provide timely, accurate, and reliable business and financial-management information. In turn, this has created higher than necessary costs for performing the business of defense.

From April 2002 to April 2003, the focus of the Business Management Modernization Program (BMMP) was on the development of the department-wide Business Enterprise Architecture and the transition plan under which DoD will move from its "as-is," or current, processes and systems to the "to-be" processes and systems that will drive its business operations in the future. IBM delivered the initial version of the Business Enterprise Architecture on May 1, 2003, on schedule and under budget. This initial version is the "to-be" Activity Model view of the architecture depicting more than 740 activities, 2,589 information exchanges, 9,946 definitions, 76 data stores, 1,081 business rules, and 4,020 business and financial requirements.

BMMP will enable DoD to provide greatly improved support for the warfighter. The program will aid DoD in a vast array of tasks, from the mundane – such as issuing supplies on time and with reduced paperwork – to those critical to our country's defense – such as identifying chemical warfare experts through an integrated employee information profile or pinpointing what munitions are available at any given place at any given moment. When the transformation is complete, DoD should be able to spend fewer dollars on business processes and systems, and more on its war-fighting mission.

The Business Enterprise Architecture is just the first step on a long road to transformation. Just as IBM honed its focus on a select group of processes as it began its own transformation some 10 years ago, DoD has selected seven high-impact segments of the architecture for further work. These seven segments are detailed later in this testimony. Those segments include further business process re-engineering and definition of corporate data.

Culture change is a key component of BMMP. Hundreds of existing policies will change. Dozens of existing systems will be modified. More than 1,000 existing systems will be phased out and more than 100 new systems will be implemented.

IBM is leveraging its transformation and enterprise architecture development experience by providing senior advice on transformation to the Department of Defense. This advice includes strategy and change consultants who establish the necessary framework for the enterprise architecture as a foundation tool to enable business management modernization. Team IBM provides the architecture development methodology and the corresponding skilled activity and process-modeling experts. The architecture development scope also includes the information exchange modeling to support the Department's leading Net Centric Enterprise Services strategy. Team IBM is also providing architecture integration and quality assurance expertise. Further, Team IBM is providing advice on how to leverage the BEA to enable system assessment and portfolio management.

Finally, IBM is providing senior advice and assistance to development of the Transition Plan as the roadmap for DoD transformation. This transition plan is based on the identification of the "to-be" capabilities. These capabilities describe the BEA in terms of executable portions to achieve key enterprise operational outputs, in support of DoD Services and agencies end-to-end missions.

In summary, IBM will continue to support architecture development and transformation efforts to help DoD achieve world-class business management and operations while enabling appropriate financial management.

Overview

Team IBM -- and in this, we mean IBM and our BMMP partners -- has made, and is making, significant progress in its collaboration with DoD to achieve the Department's transformation goals. During the past two years, we made inroads in defining the direction and tools necessary to develop a Business Enterprise Architecture that will be enduring and effective in the near and far terms. This architectural framework includes high-level processes that will serve as the integrated blueprint to transform the Department's business and financial systems. It is

comprised of models, diagrams, tables and narratives that will translate DoD's business activities into meaningful business processes. It will also help the Department to accomplish its primary goal to achieve a Clean Audit Opinion by 2007 and provide timely and accurate information and support to the warfighters and support staffs.

As part of IBM's transformation, we documented and refined certain "best practices" and lessons learned that are vital to organizational change and improvement. IBM has used these not only within our corporation, but with commercial customers as well. These practices and lessons learned are now being applied to our government customers, including DoD and its modernization program. Our intent is to ensure that we bring all available knowledge and skill to this project. While there are many successful transformation stories, none to our knowledge can rival the size and complexity of the work at DoD. Therefore, it is critical to proceed with precision and deliberateness to assure we address the right issues in the right manner to achieve the desired outcomes and results.

During this past year, working with the government staff, we have completed the difficult task of refining our strategy, solidifying our approach and determining the appropriate model to eliminate the costly stovepiped and duplicative systems that DoD currently maintains. In building the BEA, we are developing a Defense-wide information technology infrastructure that will include all appropriate system requirements associated with critical infrastructure protection and information assurances to ensure consistency with DoD's Joint Technical Architecture.

BMMP Accomplishments

From our own transformation experience, IBM realized that the basic transformation process is a journey and not an end. Results and change are evolutionary, not revolutionary. While we have indeed encountered challenges implementing BMMP at the Department, already we are seeing measurable results that have positive impact on the Department's business processes and capabilities. These successes include the following:

- Developed and implemented a broad-based program strategy.
- Created initial versions of a Business Enterprise Architecture (BEA) and a Transition Plan.
- Established a Department-wide governance structure for business transformation.
- Outlined a portfolio management process and corresponding system-assessment process design.
- Developed the methodology for business processes reengineering and modeling.
- Provided extensive support for the Domain's business process reengineering.
- Developed an initial inventory of business systems.
- Completed 27 Accounting and Finance workshops with our Domain partners resulting in the identification of accounting and financially relevant rules and requirements necessary to correct material weaknesses in the Department's Financial Statements and the corresponding required financially relevant transactions.
- Identified the basic template for a Standard Accounting Code Structure.

- Developed the template and pro forma entries for implementation of a Standard General Ledger.
- Developed an initial Business Process Reference Model to use as a starting point for Business Process Reengineering and Modeling across the Department.

Please recognize that the journey toward total transformation has just begun. The architecture is still evolving and will be updated continually. Realizing that there must be an active and implementable plan of action, we are taking steps to ensure that the transition plan correlates with the architecture and that it contains measures that help us control future investments in business systems. It will also encourage retirement of outdated legacy systems as quickly as possible.

Strategic Implementation

Determining where to begin this transformation process was, and is, a critical success factor for designing the BMMP. It was not an easy task. Given the fact that the Department is comprised of separate but interrelated Services and agencies, we spent time familiarizing ourselves with the disparate functions, missions, and cultures that would have to be addressed and/or changed to effect a successful business transformation process. Using the lessons learned from the IBM transformation, we diligently explored the landscape to determine the best approach needed to the tackle the mammoth task of eliminating the inefficient systems and procedures that impede progress towards establishing systems integration with a traceable audit trail. In this regard, we supported the Department's decision to organize its architectural development around the seven functional Domains that own the processes and could thereby determine the best means to identify problems and help formulate solutions. This Domain approach allows specific focus on key functional process improvements and portfolio management. It also brings additional challenges to the overall transformation, governance, and integration of the different Domain views into end to end models and integrated capabilities that are necessary to support end-to-end missions of the Department.

The Department's six Domains and one mission area are listed below:

- Accounting & Finance - Under Secretary of Defense (Comptroller);
- Acquisition - Under Secretary of Defense (Acquisition, Technology and Logistics);
- Human Resources Management - Under Secretary of Defense (Personnel and Readiness);
- Installations and Environment - Under Secretary of Defense (Acquisition, Technology, and Logistics);
- Logistics - Under Secretary of Defense (Logistics);
- Strategic Planning & Budgeting - Under Secretary of Defense (Comptroller), and;
- Enterprise Information Environment Mission Area – Assistant Secretary of Defense (Networks and Information Integration/Chief Integration Officer).

We are supporting these Domains with manpower resources, advice, and counsel to help them achieve their assigned mission: Establish and maintain an intra-Domain governance process;

develop the functional enterprise architecture; and manage its portfolio IT systems to ensure compliance with the BEA.

The Architecture

Designing a dynamic and enduring architecture continues to require total commitment, cooperation, and leadership support across all components and functional areas in DoD.

The initial version of the BEA was delivered in April 2003. The current version of the BEA is being delivered in three incremental phases, with versions 2.0, 2.1, and 2.2 being delivered February, April and July 2004, respectively.

The BEA versions to be delivered in the third quarter are focused on five objectives: 1) The determination and consolidation of the necessary business rules and requirements to be observed by business management operations in order to achieve Increment 1 goals; 2) The integration of the Domain business process reengineering efforts into one architecture, activity and process views to represent both the Domains models and the enterprise end to end operations; 3) The incorporation of the requirements and rules into the process model in enough detail such that resulting transactions from compliant programs and solutions enable Increment 1 goals; 4) A new enhanced system assessment process to leverage the new BEA version; and 5) Updates to the Transition Plan.

Increment 1 is focused on resolving material weaknesses, providing asset accountability, and supporting the achievement of an unqualified audit opinion. The additional incremental releases will enable end-to-end process models that define capabilities, data ownership, information flows, and unique responsibilities for each succeeding release.

Release of BEA Version 2.0	February 2004. Delivered
Release of BEA Version 2.1 –	April 2004. On Target
Release of BEA Version 2.2 –	July 2004. On Target
Release of BEA Version 3.0 –	Qtr 3, FY 2005. On Target

Governance

The management of business transformation has been vested with the owners of the Department's major business areas called Domains, as previously cited. The Department's Comptroller and Chief Information Officer oversee the major activities undertaken to implement

business transformation goals. We have worked within the Department to establish a governance structure that includes participation of the Department's senior military and civilian leaders. We have created, and are using, a hierarchy of governance committees to address and resolve both higher and lower-level management issues. Through the Program's Executive and Steering Committees, the Secretary's senior political leaders provide strategic direction and guidance. These committees and other program governing bodies include representatives from both the Office of the Secretary of Defense, the Military Services and Defense Agencies. Team IBM attends all meetings, assists with agenda planning, and ensures appropriate tasks and activities are completed timely and incorporated in the BEA as appropriate.

Transition Plan

We have assisted in designing a transition plan that provides a high-level approach to guide effective implementation of the business architecture. Like other program components, the plan is evolutionary and designed to support the capability-based structure. We focus on those capabilities that are core, fundamental building blocks for the program. These capabilities represent an implementable portion of the architecture and replaces the former concept of segments. In brief, the plan:

- Outlines a systematic approach to managing the implementation of the architecture;
- Establishes key milestones for implementing each capability, and;
- Provides an enterprise-level view of the transition process by summarizing implementation plans and related decisions from the business Domains and DoD's components.

Procedures exist to update the transition plan by identifying more specific timeframes for our transformation efforts and by adding portfolio reviews of information-technology investments. Future versions of the plan will incorporate the pertinent changes stemming from the release of each version of the architecture. We will work closely with the Chief Information Officer to assure the requirements included in the architecture conform to the Department's net-centric strategy.

Stakeholder Involvement

Our personnel are working side-by-side with our government leaders to garner acceptance of, and support for, the BEA, and to provide the necessary information and support to Services and agencies.

Challenges/Lessons Learned

Team IBM has a wealth of knowledge and experience, but we are aware that adapting transformation models from the private sector to the Federal Government structure is not easy. Given the shared leadership among the military and civilian leaders, the resounding culture differences among the Services, varied infrastructure stages of development, existing policies and past practices, delivering a top-down model for implementation is formidable. The breadth, depth, and different missions, compounded by national and international interests, further add complexity to our mission. We are cognizant of the need for change management and individual

Service involvement in the planning and execution stages of the BEA development and are providing our technical advice and support wherever needed. Further, we are aware of other related ongoing DoD transformation activities that must be considered and integrated into the enterprise architecture, so we are busy working with all interested and affected stakeholders to receive their support and ideas to make the BEA acceptable as an enhancement and expansion to all other reform actions.

Summary

We are pleased that we were selected to assist the Department in achieving its business transformation goals. We are committed to delivering the best possible advice and a BEA that will support the BMMP. We look forward to working with our Defense partners to deliver a first class BEA to improve business operations and provide timely information to leaders so they can make timely and informed decisions to more effectively support DoD readiness and joint strike capability to enable the nation's defense forces to be both agile and adaptive to any emerging threat.

Thank you for this opportunity to discuss this most important program with you.

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Statement of

Steve Peck
President
SAP Public Services, Inc.



Before the
House Armed Services Committee

Subcommittee on Terrorism, Unconventional Threats and Capabilities

U.S. House of Representatives

March 31, 2004

Chairman Saxton, Ranking Member Meehan and Members of the Subcommittee, I am Steve Peck, President of SAP Public Services, Inc. I appreciate the opportunity to appear before you today to share SAP's perspective on the Department of Defense's Business Transformation Efforts.

Who we are:

For the last 32 years, SAP's mission has been and continues to be: To create software that helps organizations become more efficient and better able to achieve their objectives and serve their customers. Our hard work and focus has made SAP the third largest software company in the world and the worldwide market leader in business application software.

We employ nearly 30,000 people in 50 countries with about 5,000 people in the United States.

Tens of thousands of organizations worldwide use our software to manage their enterprise and minimize their cost of operation.

We are an active partner with the U.S. government, which uses SAP software to enhance business operations in a number of federal agencies including the Departments of Defense (Army, Navy, DLA), Homeland Security, Treasury, Interior, Energy, NASA, and GSA.

We are a strong believer in the future of the American economy and will continue to invest heavily in our U.S. operations. In fact the majority of future corporate investments will be in the United States where we continue to create jobs.

We develop open standards software to make it possible to manage the broad diversity of technologies and systems found in the market place. Our technology facilitates the integration and alignment of people, information, and business processes across organizations and technology boundaries easily integrating information and applications from virtually any source. We believe these capabilities are important because they are consistent with DoD's Net-Centric Operations and the Global Information Grid strategies. We provide a scalable, reliable, and proven infrastructure that allows open integration with all major standards.

Comprehensive, Scalable, and Secure Solutions

Our products and experience, combined with the expertise and reach from our partners, three of whom are seated beside me today, provides clients with the most comprehensive family of business solutions. We combine best-of-class functionality, complete integration, industry-specific capabilities, scalability, and easy collaboration. Our product suite spans financials and human capital management, logistics, supplier and customer relationship management, and supply chain and product life-cycle management. We also provide decision support and analysis capabilities via business intelligence products for strategic enterprise management including balanced scorecards.

Defense & Security

In addition to core product offerings, we have also created specific solutions for Defense and Security to address the entire range of resource management and control needs across the various defense forces, security, and non-governmental organizations. These products enable planning, building, and supporting an operating force throughout the spectrum of operations. They enable improved management of the organization, personnel, material, and financial resources.

Our Experience and Focus

We have gained a wealth of experience in helping organizations modernize and transform to fit their strategic goals. We work with our clients and business partners to understand the drivers for change and how success can be achieved in the fastest way possible. We currently operate and have been successful in 23 different industries. In the Aerospace and Defense industry 23 of the top 25 corporations use our software.

For instance, about four years ago Raytheon implemented our software as the overall common system to provide a single operating picture to their leaders and "one face" to the customer. This was important because the company has grown to over $10 billion through organic and acquisition & merger strategies that brought together people and systems from different organizations. By using our products, Raytheon can now access information from throughout their global operations and network of over 93,000 employees.

The Bureau of Customs and Border Protection at the Department of Homeland Security decreased the time required to reconcile their monthly rent bill from GSA from 8 days to 10 minutes. They have completed the first two phases of their SAP implementation and have realized significant efficiencies in their day-to-day operations. Managers now query the system directly to answer their questions instead of relying on support staff to gather data. The new paperless environment allows users to create requisitions electronically, giving procurement specialists more time to focus on their core responsibilities. System administrators now maintain one system to do the work that formerly required six systems.

At NASA, SAP software is now used to meet core financial accounting requirements. NASA is able to achieve three important functions:

- On-line real time integration of US Government Standard General Ledger (USSGL) accounting as prescribed in Treasury's Financial Manual (TFM) for all financial transactions for the Agency at the document line item level of detail.
- On-line real time integration of the procurement business process for complex long-term contracts that are incrementally funded from multiple appropriations with the Office of Management and Budget's (OMB) requirements for budget execution across fiscal years.
- Integration through periodic allocations of the Federal Accounting Standards Advisory Board's (FASAB) full cost accounting requirements for all indirect costs of the Agency with NASA's current budget formulation structure which does not explicitly budget all indirect costs.

The Defense Logistics Agency's Business Systems Modernization (BSM) project is modernizing financial management, order fulfillment, supply and demand planning, material management, and procurement. As part of this effort DLA reengineered its business practices adopting the commercial best practices embedded in SAP software. This comprehensive integrated system is in use today for thousands of items of supply at all three Inventory Control Points and is on track to manage more than 4 Million items when fielding is completed. Business processes have been improved, organizations reshaped, and the workforce re-tooled. BSM is supporting the DLA mission today which includes operations in Afghanistan and Iraq.

The U.S. Army is using our software to build their new Global Combat Support System; as the backbone for provisioning and depot maintenance; to assemble and distribute mobile Army Surgical Hospitals and for business management in the Armaments Research Development and Engineering Center at Picatinny Arsenal, NJ. The Army is creating an integrated logistics enterprise and continuing to get value from our solutions to enable control, visibility and sharing of technical information from factory to foxhole. We support the Army's efforts to create a logistics common operating picture (LCOP) to give joint commanders the ability to make decisions based upon real-time logistics information.

The U.S. Navy uses our software to operate and manage acquisition programs; to integrate maintenance and supply operations of aviation and ship maintenance; to provide visibility of resources across activities and optimize supply chain management; and to validate compliance with the CFO Act. This has resulted in reductions in legacy IT and data base systems while improving data quality and adding timeliness benefits. All independent pilot projects are being combined into a single ERP system for the Navy to standardize Navy business processes for acquisition, financial, logistics and maintenance operations. Integration of these systems is expected to improve accountability within the Navy and provide near real time information for decision making to all levels of management.

We take great pride in the fact that all of our federal customers have either succeeded or are on the road to success in their SAP implementations. Most have taken advantage of the best practices inherent in the software, and have been able to replace significant numbers of legacy applications with our integrated application software.

Our view of challenges and opportunities:

The rapid change and innovation in technology presents some unique challenges and opportunities on how to best apply technology to support the core missions of the Defense Department.

The general trend has been to consolidate IT infrastructures, thin out server landscapes and save on resources by reducing complexity and costs. Most businesses are looking to invest more in innovation and less on maintenance of IT. From our viewpoint the crucial issue for most large organizations is mastering complexity while ensuring integration.

In the past, laws and regulations have often required government to purchase products and services in a very specific way with detailed guidance on what is needed and how a specific solution must operate. This approach was indeed important in the past because it helped companies better understand the government needs and be able to effectively deliver on the specified requirements of any given agency or department.

Because of the investments technology companies have made and the broader adoption of technology in the private and public sectors, government now has a unique opportunity to put this innovation to work in ways that allow for faster acquisition and implementation cycles. It is now possible for government to purchase technology solutions with the end goal as the primary objective. This approach allows for the lessons learned throughout the private and public sectors to be quickly applied to achieve the desired end state. We believe this approach will lead to shorter acquisition cycles and faster results.

We also strongly recommend developing acquisition approaches and processes that are focused on *what* must be done, and allowing organizations to bring forward the proposed approach on *how* to achieve the goals. We believe this approach provides a framework for best capitalizing on the decades of best practices that have been embedded in the design of COTS products like SAP and will allow capturing the value of the investments made to create those practices.

Our experience has allowed us to bring forward insights and solutions that result in increased efficiency and effectiveness for our customers. For certain, we understand that the end goal here is to help protect and defend our country by making sure the Department of Defense has the tools to function efficiently and to make sure our warfighters have what they need and are fully supported.

Finally, I would like to stress that SAP is fully committed to helping DoD and federal agencies achieve their clean audit opinion and business efficiency goals. We hope that our testimony has been helpful to you, Mr. Chairman, Ranking Member and Members of the Subcommittee

We look forward to continuing to serve as a positive and trusted advisor.

Thank you very much for the opportunity to provide these remarks.

Steve Peck
President
SAP Public Services, Inc.

As president of SAP Public Services, Steve Peck is responsible for the company's sales, marketing and partner operations for the public sector in North America, including federal, state and local governments, utilities, higher education and healthcare institutions. Steve brings more than 18 years of domain expertise in the enterprise applications market.

Prior to joining SAP, Steve served in executive roles in enterprise application companies including Adaytum Software, Ironside Technologies and PeopleSoft. In his role as corporate vice president of strategic programs for PeopleSoft, Steve was responsible for developing innovative customer service programs and executing on the associated marketing and partnering strategies. As vice president of sales, Steve helped launch PeopleSoft's federal business unit, driving an increase in revenues of more than 300 percent in 1998.

Steve is actively involved with several government and technology industry groups, such as the Industry Advisory Council and the Information Technology Association of America and is a frequent speaker at industry events.

Steve resides in Hunt Valley, Maryland with his wife and three children.

Federal Grants/subgrants, Contracts/subcontracts for past three years:

Contract	2001 Revenue	2002 Revenue	2003 Revenue	Total
GS-35F-5891H (Federal Defense)	$21,283	$12,033	$7,411	$40,727
Sub-Contract S-5878 to DAAB07-00-D-E-252	$7,728	$7,828	$4,469	$20,025
DLA-S013-02			$10,380	$10,380
GS-35F-5891H (Federal Civilian)				
Federal Prisons	$687	$63	$1,814	$2,565
NASA	$9,242	$11,617	$8,353	$29,211
U.S. CUSTOMS	$1,984	$2,199	$11,201	$15,384
U.S. POSTAL	$2,202	$233	$655	$3,090
U.S. GEOLOGICAL SURVEY	$591	$404	$145	$1,140
GSA			$3,081	$3,081
IRS			$1,308	$1,308

Note: Figures include SAP Public Services Federal Contracts Revenue totals for Software, Maintenance, Consulting, and Training, In thousands of U.S. Dollars

Testimony of Kent Schneider, President,

Defense Enterprise Solutions

Northrop Grumman Information Technology

Committee on Armed Services, Subcommittee on Terrorism,

Unconventional Threats and Capabilities

"Fiscal Year 2005 National Authorization Act, Department of Defense's Business Transformation Efforts"

Rayburn House Office Building

Room 2118

31 March 2004

Kent Schneider, President, Defense Enterprise Solutions, Northrop Grumman Information Technology

HASC Presentation – 31 March 2004

Ladies and Gentlemen, I am Kent Schneider and have the privilege of being the President of Defense Enterprise Solutions of Northrop Grumman Information Technology, headquartered in McLean, Va. I appreciate the opportunity to share my thoughts with you today. The Department of Defense is in the midst of a profound transformation of business systems and processes that supports new operational concepts and reflects great technology strides in communication and enterprise awareness. Secretary of Defense Donald Rumsfeld recently issued a memorandum indicating that the DoD has done well on the operational side of Defense transformation, but that he did not have that same sense regarding DoD systems, processes, and business practices. Secretary Rumsfeld stated that we remain "in the Industrial Age, vice the 21st Century", with regard to DoD systems and processes.

At Northrop Grumman, we believe three concepts or themes underpin successful public domain business systems modernization and transformation:

- First, DoD needs to take an enterprise view of defense transformation in order to achieve interoperability, scalability, agility and greater mobility of enterprise systems and architectures.
- Second, we (the DoD and industry) need to re-use and reapply technologies that already exist. We need to take proven, best-of-breed technologies from the commercial and government sectors and adapt them to similar problems in possibly unrelated environments. Lower cost and lower risk will result from such reapplication.

- Third, we need to find a balance between best commercial practices and DoD systems engineering experience and domain expertise. Often, proven commercial solutions and practices fail when applied to Government requirements, particularly in the DoD. This results from the unprecedented scale of defense operations, the complex environment within which major defense systems are developed and introduced, and unique Government processes that are often anchored in public law and regulation. We have found that a partnership between commercially-oriented firms and defense integrators like Northrop Grumman offer the proper balance, bringing commercial best practices and the required military domain expertise.

Allow me to offer one example that embraces all of these concepts in a successful defense transformation. The Defense Integrated Military Human Resources (DIMHRS) system is a new DoD program that drives at the very heart of transformation requirements for our globally deployed forces. DIMHRS is the epitome of an enterprise approach to business system transformation. We are now using combined forces in combat areas where all active services are represented, along with their National Guard and Reserve Component counterparts. The individual war fighter must be assured of timely and accurate pay for his family. The Combatant Commander must have access to personnel readiness assessments that impact his decision process in theater. DIMHRS, when fully deployed, will provide all pay and human resources information for 3.1 million service men and women worldwide. Upon completion, a single integrated system will support human resources management, pay and benefits for every Service, active, retired, reserve,

and National Guard. Think of the flexibility that provides in an environment of rapid global deployment of reconfigurable forces.

DIMHRS is being built on commercial off-the-shelf products. The PeopleSoft Human Resources Management System (HRMS) was selected by the Government as the heart of this new system. We selected other commercial products to complement the HRMS and fulfill the DoD requirements. Less than 10 percent of this system will be custom software at completion, speeding delivery, reducing cost, and minimizing risk.

DIMHRS also provides evidence of the need for marriage of commercial practice and defense domain experience and the ability to integrate in a complex environment. As previously mentioned, DIMHRS will be built on a PeopleSoft HRMS to develop a system to support 3.1 million soldiers, sailors, airmen, and marines. This is a full order of magnitude larger than any other PeopleSoft development ever attempted. DIMHRS will replace 79 legacy systems and provide a DoD-wide system that integrates personnel and pay systems and tracks each war fighter's career from recruitment to retirement. We have addressed this complex set of requirements by assembling a team that brings the best of commercial practice and experience, combined with Northrop Grumman's 30-plus years of military HR development and integration experience.

In conclusion, the cornerstone of DoD's successful business transformation is a public-private partnership with those organizations possessing in-depth knowledge of the DoD domain coupled with a successful history of designing and implementing large scale enterprise integration and interoperability solutions. Given that foundation of knowledge and expertise, commercial products and practices can be successfully applied to the military's complex requirements. Thank you for your attention.

FISCAL YEAR 2005 NATIONAL DEFENSE AUTHORIZATION ACT—DESTRUCTION OF U.S. CHEMICAL WEAPONS STOCKPILE-PROGRAM AND STATUS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
SUBCOMMITTEE,
Washington, DC, Thursday, April 1, 2004.

The subcommittee met, pursuant to call, at 10:05 a.m., in room 2212, Rayburn House Office Building, Hon. Jim Saxton (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, CHAIRMAN, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. SAXTON. Good morning, everyone. Today, the Terrorism, Unconventional Threats and Capabilities Subcommittee meets to review the Department of Defense programs for destruction of the U.S. stockpile of lethal chemical warfare agents and munitions and the fiscal year 2005 budget request for the program.

We are joined at the hearing by several Members of Congress who have chemical stockpile storage in their States or districts and who are interested in chemical demil programs. I want to welcome each of those members.

The U.S. chemical weapons stockpile originally consisted of approximately 31,000 tons of lethal chemical agents in a wide variety of munitions, located at Johnston Atoll in the Pacific southwest of Hawaii and 8 sites in the continental United States. The fiscal year 1986 Defense Authorization Act requires that the destruction of the stockpile be carried out so as to ensure maximum protection of the environment, the general public, and the workers at the storage and demil sites. Destruction of the stockpile began at Johnston Atoll in 1990 and is supposed to be completed by April 29, 2007 in accordance with the Chemical Weapons Convention Treaty (CWCT).

As of March 15, 2004, over 8,600 tons, 27 percent of the total stockpile, have been destroyed. One hundred percent of the stockpile is now under contract for destruction.

Disposal operations have been completed at Johnston Atoll and that facility closed. Three disposal facilities are operational in the continental United States, and an additional three facilities could be operational by the end of the year. Seven thousand four hundred sixty-eight tons of the nerve agent, GB, 78 percent of the GB stockpile have been destroyed. Seven hundred and twenty-six tons, or 16

percent, of the VX persistent nerve agent stockpile have been destroyed. Much has been done, but much remains to be done.

I have concerns about the program. We have to seek measures to reduce the time required to destroy the stockpile, and we have to seek measures to reduce the cost of that destruction. The current cost estimate of almost $25 billion to destroy the stockpile is mind-boggling. We must find ways, reasonable and cost-effective ways, to reduce the cost of destroying the stockpile.

Current estimates that the last agent will not be destroyed until 2014 and the last facility will not be closed until 2019 not only add to the total cost of the program, but also place our obligations and commitments under the Chemical Weapons Convention Treaty at risk. They frankly are unacceptable. We must find ways, and affordable ways, to accelerate the destruction of the stockpile.

Above all, however, we must destroy the stockpile is such a manner that we ensure maximum protection of the environment, the general public and the workers at the storage and demil sites. That was true when Congress mandated the program in the 1986 Defense Authorization Act and is no less true today.

I am particularly concerned about ensuring that the current plans for off-site disposal of nerve agents are safe, and I will work with the appropriate agencies in the Army and in particular in the New Jersey Department of Environmental Protection to ensure that these plans are safe for the Delaware Bay environment in the case of the New Jersey-Delaware-Pennsylvania members who are concerned.

To address the status of the Chemical Weapons Destruction Program (CWDP), the fiscal year 2005 budget request for the program and how the program is being executed are to be discussed by our witness here today. Before I introduce our witnesses, let me ask my good friend, Mr. Smith, if he has any comments that he would like to make?

[The prepared statement of Mr. Saxton can be found in the Appendix on page 457.]

STATEMENT OF HON. ADAM SMITH, A REPRESENTATIVE FROM WASHINGTON, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. SMITH. Just quickly, I agree totally with the chairman's remarks, and I should point out I am filling in form Mr. Meehan. He had a conflict this morning.

The Chemical Stockpile Destruction Program is critically important. I appreciate all of your work on that, Mr. Chairman. It is sad it is proving more costly and time-consuming than we expected but, then again, what doesn't turn out that way these days? But we need to figure out ways to speed it up and do it in a cost effective way.

Certainly, when you think about all the work we do on nonproliferation throughout the globe and how important that work is, this is important for our credibility and continuing to pursue that and try to get people to cooperate with us internationally. So I applaud all of the efforts before hearing the testimony today about how we can do it more quickly and more cost effectively, but the bottom line is the program is critical and we need to continue to

support it until we finish our job. And I thank the chairman for the opportunity.

[The prepared statement of Mr. Smith can be found in the Appendix on page 460.]

Mr. SAXTON. I thank the gentleman for his comments.

Our witnesses today are Dr. Dale E. Klein, Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs; Mr. Patrick Wakefield, Deputy Assistant to the Secretary of Defense for Chemical Demilitarization and Counterproliferation; the Honorable Claude M. Bolton, Assistant Secretary of the Army, Acquisition, Logistics and Technology; Mr. Michael A. Parker, Director of the U.S. Army Chemical Materials Agency; Mr. Craig Conklin from the Energy Preparedness and Response Directorate of the Department of Homeland Security; and Dr. Patrick J. Meehan from the Centers for Disease Control. Mr. Decker from the Accounting Office, Mr. Raymond Decker from the Accounting Office.

Gentlemen, welcome. We look forward to your testimony, and before you do begin I want to ask unanimous consent that all of your statements be included in the record in full. And since we have a healthy looking group of people here, we would appreciate whatever you can do to make your statements complete but brief.

And we will start with Mr. Meehan—I am sorry, with Dr. Klein.

STATEMENT OF DR. DALE E. KLEIN, ASSISTANT TO THE SECRETARY OF DEFENSE FOR NUCLEAR, CHEMICAL AND BIOLOGICAL DEFENSE PROGRAMS; HON. CLAUDE M. BOLTON, ASSISTANT SECRETARY OF THE ARMY (ACQUISITION, LOGISTICS AND TECHNOLGY); PAT WAKEFIELD, DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE (CHEMICAL DEMILITARIZATION); MICHAEL A. PARKER, DIRECTOR, U.S. ARMY CHEMICAL MATERIALS AGENCY; CRAIG CONKLIN, CHIEF, NUCLEAR AND CHEMICAL HAZARDS BRANCH PREPAREDNESS DIVISION, DEPARTMENT OF HOMELAND SECURITY; DR. PATRICK MEEHAN, DEPUTY DIRECTOR FOR PROGRAM, NATIONAL CENTER FOR ENVIRONMENTAL HEALTH, CENTER FOR DISEASE CONTROL AND PREVENTION AND AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY AND RAYMOND J. DECKER, DIRECTOR, DEFENSE CAPABILITIES AND MANAGEMENT, GENERAL ACCOUNTING OFFICE

Dr. KLEIN. Thank you, Mr. Chairman and distinguished members of the committee. I am grateful to have the opportunity to address the Subcommittee today and provide you my assessment of the Department of Defense Chemical Demilitarization Program.

To begin I will request my written testimony be submitted for the record.

Mr. SAXTON. Without objection.

Dr. KLEIN. Thank you. As indicated, my name is Dale Klein. I am the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs. In this capacity, I am the principal advisor to the Secretary and Deputy Secretary of Defense and the Undersecretary of Defense for Acquisition, Technology and Logistics (ATL) for all matters concerning the formulation of policy and plans for nuclear, chemical and biological defense

programs and directly responsible for matters associated with nuclear weapons safety and security and chemical weapons demilitarization.

While representatives for the Office of the Secretary of Defense, the Army, the General Accounting Office, the Centers for Disease Control and Prevention and the Federal Emergency Management Agency will all testify before you today, we address the problem of the elimination of chemical weapons as a team approach. Although the Department of Defense's Chemical Demilitarization Program has experienced many highs and lows this past year, our team is committed to maintaining and expanding our Nation's ability to safely destroy our aging stocks of chemical weapons.

This will require us to balance the program's challenges to a position where we can leverage our current resources to maximize the amount of chemical weapons we destroy but doing so in a manner that protects the safety and workforce and the surrounding public. My commitment to safety is and will continue to be of paramount consideration. I have spent many years in the nuclear industry where safety is very important, and I certainly take no lesser stance for this program.

There are two important points I would like to make today. First, the importance of fully funding the Department's fiscal year 2005 budget request for the Chemical Demilitarization Program, and, second, your support for our legislative proposal to consolidate the Assembled Chemical Weapons Alternative Program, commonly called ACWA, under the Army.

Most of the DOD fiscal year 2005 chemical demilitarization budget request is now being spent on actual destruction of chemical weapons. We have several plants that should start operating during fiscal year 2004. By fiscal year 2005, the department expects to be operating six chemical weapons destruction facilities, and now more than ever each and every dollar requested is critical for destroying our chemical weapons stockpile and maintaining our international commitment outlined in the Chemical Weapons Convention.

As I indicated earlier, I also ask for your support of our legislative proposal to consolidate the ACWA under the Army. As the General Accounting Office (GAO) reported last September, management of the DOD Chemical Demilitarization Program is unnecessarily complex and should be streamlined. While the Army has done a great job of streamlining the program by the creation of the Chemical Materials Agency (CMA), further efficiencies are necessary. Consolidation of all the chemical weapons elimination efforts into a single organization will create economies of scale and will allow us to unify the program during a time of much activity.

The ACWA Program has been successful in identifying the technologies to be used at the Pueblo, Colorado and Blue Grass, Kentucky sites. Placing the ACWA Program under the Army with continued Office of the Secretary of Defense (OSD) oversight will enable the Army to better manage the total Chemical Demilitarization Program as we move through the implementation phase.

In closing, the department is fully committed to destroying our Nation's chemical weapons stockpile safety and expeditiously. To be fully effective, we need your assistance in maintaining funding to

enable us to continue to meet our commitment to our citizens and to the world to destroy the U.S. chemical stockpile. I welcome any comments or questions you might have on the DOD Chemical Demilitarization Program, and I look forward to continuing to work with you as we advance our common goal of safely and completely destroying our old chemical weapons stockpile. Thank you.

[The prepared statement of Mr. Klein can be found in the Appendix on page 476.]

Mr. SAXTON. Dr. Klein, thank you very much.

Mr. Secretary, Secretary Bolton.

Secretary BOLTON. Good morning. Members of the committee, I am grateful to again have the opportunity to address the committee. I, too, would like to request that my written statement be entered into the record in its entirety.

In my capacity as the Assistant Secretary of the Army for Acquisition, Logistics and Technology and as the Army Acquisition Executive, I am responsible to the Acting Secretary of the Army and to the Defense Acquisition Executive for the execution of the Chemical Demilitarization Program.

Be assured that I am fully committed to successful implementation of the Chemical Demilitarization Program. I am also fully committed to ensuring that the public, the Congress, and the leadership and the senior Department of Defense leadership have timely, accurate information of our progress. Today, I would like to make three main points about the Chem Demil Program. First, we are committed to a safe destruction of the stockpile. Second, we are committed to performing this mission within the identified program funding levels. Last, we are scheduled to be fully operational at all of the sites under my purview this calendar year.

The mission of the Chem Demil Program is to destroy all U.S. chemical warfare material while ensuring maximum protection to the public, program personnel and the environment. We have made tremendous strides in community protection in the past few years, ensuring that the local communities near these facilities are fully prepared. I would like to reiterate that our objective is to reduce the risk to the communities surrounding chemical storage sites in concert with our partners at the Department of Homeland Security's Federal Emergency Management Agency, or FEMA, as we safely eliminate the U.S. stockpile of lethal chemical agents and munitions.

We have recently updated an Army-FEMA memorandum of understanding (MOU) that reinforces our partnership and continues our promise of providing maximum protection to the general public, workers and the environment. Each day that we operate a chemical destruction facility, we reduce the threat posed to the public by continued storage. At this critical juncture in our efforts to destroy the chemical agents stockpile, fully funding the President's budget request is imperative. The Army has carefully evaluated our requirements and we believe that we can meet these requirements at the President's proposed level of funding and still ensure that the program is executed with the highest principle and ethical standards.

Today's state-of-art destruction facilities for destroying the Nation's stockpile of chemical agents and munitions at Tooele, Utah,

Anniston, Alabama and a neutralization facility is in operation at Aberdeen, Maryland. Construction at our incineration facilities at Umatilla, Oregon, Pine Bluff, Arkansas and at our neutralization facility in Newport, Indiana is complete, and these sites are undergoing systemization. We expect to have these three sites operating at the end of this year.

As you know, Mr. Chairman, we have had challenges at Newport because of the waste part. We are currently working very closely with a second source for that waste part, and we are very confident that we will be able to bring that on board later on this year and have that site up and operational before the end of this year.

As we begin destruction operations across the United States, we will continue to rely heavily upon the professionalism of our talented workforce to perform their duties safely and expeditiously. I am proud of the government, civilian and contractor professionals performing this most important mission. With vision, they have made some great achievements on behalf of the program. The largest under the Army was it passed an 80 percent former production facility destruction milestone 16 months ahead of the Chemical Weapons Convention requirements. I am pleased that the Anniston facility has destroyed 50 percent of GB rockets stored there. During just 7 months of operations there, they have effectively and swiftly reduced the risk posed by continued storage. And since I last testified before this committee, the Army has destroyed an additional 450 tons of chemical agents and 21,905 munitions.

In closing, Mr. Chairman, I ask for your continued support of this critical national program so that we may remain committed to the communities surrounding our storage sites, to the Nation and to our international partners. Thank you for the opportunity to present my statement to you and the members of this committee this morning, and I look forward to your questions.

[The prepared statement of Secretary Bolton can be found in the Appendix on page 481.]

Mr. SAXTON. Mr. Secretary, thank you very much.

We will move now to Mr. Craig Conklin.

Mr. CONKLIN. Mr. Chairman and members of the subcommittee, I am pleased to be here to provide this statement to the committee wherein I will update FEMA's activities in support of the Chemical Stockpile Emergency Preparedness Program (CSEPP) since my last testimony before on October 30 of last year. The partnership between the Army and FEMA is very strong and getting stronger. We are working on initiatives that are designed to enhance public protection, streamline budgeting and administrative tasks and improve the effectiveness of the overall program.

Since my last testimony, we have made many notable successes. We have developed a cooperative agreement tool, version number 3.0, which is an automated CSEPP financial management tool for budget application, review, approval, award, reporting and closeout of CSEPP grants and cooperative agreements. We have developed a computer-based interactive planning and training tool for recovery planning, which will help our communities develop first-rate recovery plans. We continue to share information and best practices using our updated CSEPP portal so that all the communities have the benefit of lessons learned from our sister sites.

We are proud of the public safety efforts that FEMA and its partners have accomplished in Alabama. The U.S. Army Corps of Engineers worked with an accelerated schedule to complete collective protection construction projects at 20 schools in the community in a very time-compressed fashion.

As of March 31, 2004, approximately $645 million has been allocated to the States under the annual cooperative agreements since the beginning of the program. In addition, another $80.2 million has been applied to FEMA-managed contracts that support those States. For fiscal year 2005, FEMA has programmed $96.3 million into the budget to cover all CSEPP requirement and preparedness activities. We have made significant strides in improvement benchmark compliance during 2003. The level of compliance has risen from 93 percent to a little over 95 percent. We are continuing our dialogue with state, county and Tribal Nation partners to resolve outstanding issues and to sustain the high level of preparedness that exists within the program.

As just mentioned, we have renewed our partnership through the resigning of the MOA between the Department of the Army and FEMA, which reaffirms our commitment to public health and safety. We continue to strive to increase our preparedness and readiness with a goal of reaching 100 percent benchmark attainment within the very near future. Our efforts to improve public safety, however, will not cease until the chemical weapons stockpiles are completely destroyed.

Outstanding issues in CSEPP include our continued commitment to work with the States to put together realistic cost estimates and to validate major infrastructure projects to ensure that there is resultant risk reduction. FEMA continues to stress that the best risk reduction is the quick destruction of the stockpile.

We have been asked if there is a potential for program reduction as agent destruction proceeds. The program will naturally reduce in overall cost as each community leaves the program after the last chemical warfare agent is destroyed at their stockpile site. Statutory language states that no assistance may be provided to State and local governments after the completion of the destruction of the stockpile of lethal chemical agents and munitions. However, an effective emergency management program must remain in place until the stockpile is destroyed.

This fundamental emergency response capability is reflected primarily in base operating costs and periodic equipment replacement requirements. Although base operating costs in a mature program remain fairly constant, FEMA is committed to working with the Army to reevaluate program activities as risk reduction to the communities through the destruction of the agents is achieved. If the chem demil schedule slips significantly, then we face the possibility of increased equipment replacement requirements, and some of this equipment can be quite expensive.

Finally, we anticipate that there will be some additional costs associated with terminating CSEPP activities at each site. A close-out integrated product team has been formed to address these close-out issues and to develop guidelines for State and local governments on how to proceed with close-out activities.

In closing, I want to thank our CSEPP communities for their commitment and dedication to this important program, and we renew our pledge to work with them until their risk of a chemical stockpile incident no longer exists. Because of agent disposal, Alabama has reduced its risk by 12 percent in the few months since my last testimony. The other communities can see similar reductions once they begin destruction of the chemical weapons, and we all look forward to that day when the last chemical weapon and warfare agent is destroyed. Thank you.

[The prepared statement of Mr. Conklin can be found in the Appendix on page 486.]

Mr. SAXTON. Thank you very much.

Dr. Meehan, please.

Dr. MEEHAN. Mr. Chairman and members of the subcommittee, I am Patrick Meehan, Deputy Director of Programs at the National Center for Environmental Health, one of the centers within the Centers for Disease Control (CDC) and Prevention. I want to thank the committee for inviting me here today to discuss CDC's legislatively mandated public health oversight role in the DOD's Chemical Demil Program. I want to also to thank the subcommittee for your interest in ensuring the safe destruction and disposal of our Nation's chemical weapons stockpile.

My testimony is going to focus on two general topics: First, CDC's mandated role in overseeing DOD's plans for destroying the Nation's stockpile of chemical weapons, and, second, CDC's involvement at the Newport, Indiana and the Aberdeen, Maryland facilities.

The U.S. Department of Health and Human Services is mandated by law to oversee DOD's plans for destroying the Nation's stockpile of chemical weapons, including any plans to transport or dispose of lethal chemical or biological warfare agents. Our mission in carrying out the mandate is to protect the public's health and safety by reviewing plans, providing advice and making recommendations on the safe disposal and transportation of both stockpile and non-stockpile chemical warfare agents.

The Secretary of Defense is required to implement CDC's recommendations for precautionary measures to protect the public health and safety. In carrying out these activities, CDC's primary focus has been on preventing potential problems that could adversely affect the health of disposal site workers and the surrounding communities. I have provided more detail on CDC's general role in this program in my written testimony.

During 2004, CDC's Chemical Demil Program has focused much of its activities on the Newport Chemical Agent Disposal Facility in Indiana, because the planned process is a relatively new technology on a fast track, and operations are scheduled to begin soon. The proposed process at Newport, Indiana will use chemical neutralization of VX, followed by secondary transportation to an offsite facility for treatment and disposal of the resulting wastewater.

CDC has devoted significant resources to evaluating the first phase, the neutralization of VX at the Newport site. The two basic concerns with this first phase are, first, ensuring that the waste hydrolysate, the waste byproduct of neutralized VX, does not contain any detectable level of VX, and, second, ensuring that the fa-

cility can operate safety. Last year, CDC conducted an evaluation of the Newport site's hazard analysis process. The review provided recommendations in several key areas. The Newport staff and contractor are currently addressing our recommendations. In addition to the CDC review, the Newport project team has contracted with Texas A & M University to conduct an independent risk analysis of the process. CDC will review the results of the analysis before the facility begins processing agent.

In conformity with public laws delineating our involvement in chemical demilitarization, CDC's role generally ends when the waste no longer contains any detectable level of chemical weapons agent, at which time the responsibility for the waste falls under existing transportation and environmental disposal regulations. Nonetheless, CDC is available to provide assistance to the Army or to EPA within our areas of expertise.

The Army's proposal for secondary treatment of Newport caustic hydrolysate at a Dupont facility in New Jersey has generated significant public controversy. CDC has reviewed and provided comment on one draft DuPont report related to health hazards associated with the hydrolysate, a document titled, "Health Hazard Considerations for Safe Management of Newport Caustic Hydrolysate". CDC was not asked to review the other three DuPont documents. In short, CDC has not conducted a comprehensive review or analysis of the proposed project to transport and treat the secondary waste generated by the VX neutralization.

The Aberdeen facility is another chemical neutralization facility at which CDC has been active in an oversight role during the start-up of operations. Before the Aberdeen facility began processing agent, CDC evaluated the air monitoring systems and laboratory capabilities, attended integrated operation demonstrations and examined process safety. CDC is aware of the operational problems at the Aberdeen site and has been briefed by the Army on the status of the facility. CDC is planning to revisit the facility in May of this year to review changes the Army has made to the operation.

Although I have pointed out a number of challenges currently associated with our oversight responsibility, I want to also emphasize that CDC has had a long and successful working relationship with the Army's chem demil activity. The successful completion of the agent destruction mission at Johnson Atoll and the safe elimination of the GB stockpile at Tooele, are representative of the true accomplishments in reducing the threat of chemical weapons. CDC looks forward to contributing to continued safe progress in this vital program.

Mr. Chairman and members of the committee, this concludes my testimony, and I would be happy to answer any questions and respond to requests for information. Thanks.

[The prepared statement of Dr. Meehan can be found in the Appendix on page 492.]

Mr. SAXTON. Thank you very much, Dr. Meehan.

Mr. Decker.

Mr. DECKER. Good morning, Mr. Chairman, members of the subcommittee. It is a privilege to be here this morning to discuss an important program that affects our nation.

Since its inception in 1985, the Chemical Demil Program has been charged with destroying the Nation's large chemical weapons stockpile of over 31,000 tons of agent. The program started destroying the stockpile, as you know, in 1990. As of March 2004, the program had destroyed over 27 percent of the stockpile.

The program was recently reorganized into the Chemical Materials Agency, which my friend Mike Parker heads, to manage seven of the nine sites. There are five sites using incineration to destroy the agent and two bulk agent only sites using neutralization. The Assembled Chemical Weapons Alternatives, ACWA, Program in the Department of Defense manages two sites, Pueblo and Bluegrass, and they use neutralization to destroy the agents.

This testimony updates our 2003 September report and the October 2003 testimony before this committee. As requested, I will briefly comment on the following areas: The changes in the status of the program milestones and program costs, recent developments that impact the Chemical Weapons Convention, CWC, deadlines, the challenges associated with managing the program and an update on the status of the Chemical Stockpile Emergency Preparedness Program, CSEPP, which Mr. Conklin just spoke about.

Since GAO testified in October of 2003, the Chem Demil Program continues to fall behind in its scheduled milestones which were last extended in 2001. In the last 6 months, very little agent, and I think you heard 400 tons or so, were destroyed. While one site has closed, no new sites have started destroying agent, although two were scheduled last month—March. The delays in the program schedule can be attributed to incidents during the operation at different sites, environmental permitting issues, concerns about emergency preparedness and unfunded requirements. If these delays persist, GAO continues to believe that program costs will substantially rise higher than the 2003 October estimate of $25 billion.

Already these rising costs have forced a reallocation of funds within the program's fiscal year 2005 budget. Due to schedule delays, the United States will not meet the CWC April 2004 deadline to destroy 45 percent of the stockpile, and I think Mr. Bolton covered that—made that comment. Although the United States has received an extension to December 2007, It is questionable if the program will meet this deadline. Furthermore, DOD has said it will ask for an extension of the final deadline to destroy 100 percent of the stockpile beyond 2007, and you are allowed up to a 5-year extension. And as you heard earlier, probably we are going to ask for the extension to 2012.

A positive development in the program is that the current leadership has been stable for over a year since this reorganization, the CMA reorganization. However, as we have noted before, several long-standing organizational and strategic planning issues remain. One problem is the complex nature of the program and the multiple lines of authority which make roles and responsibilities somewhat unclear once you get below the leadership here at the table. Another area that GAO recommended a recommendation, which has been accepted, was the need for a strategic plan as well as a risk mitigation plan so that there would be no surprises in the future. These important management tools will improve the efficiency and the effectiveness of the program.

Since GAO testified last October, there continues to be improvement in the preparation of State and local communities to respond to chemical emergencies, and you heard Mr. Conklin comment that 6 of the 10 sites—States near the stockpiles report that they are fully prepared while four are very close to completion, and that is a good sign.

This is a marked improvement since the 2001 report where we noticed that three States were significantly behind in their preparation. But the dilemma is that CSEPP costs continue to rise, and this is because some States expanded their preparedness budgets—their requests past their approved budgets, and that is an area that I hope to comment on later about the definition of maximum protection.

In closing, as the program costs steadily mount and it continues to miss milestones, the pressure on the program leadership to effectively manage this complex effort will become more acute. The current and future Federal budget realities will severely test the ability of the program leadership to expeditiously and safely destroy the chemical weapons stockpile while exercising good fiscal stewardship.

Without fresh, innovative and effective approaches that engage all stakeholders, including Congress, State, local and other elements of the executive branch, in a frank and honest dialogue to resolve many of the problem areas I have highlighted, the chemical demil team will struggle to present acceptable results expected by our government, our Nation and our citizens.

Mr. Chairman, this concludes my personal statement. I will answer any questions the committee has.

[The prepared statement of Mr. Decker can be found in the Appendix on page 462.]

Mr. SAXTON. Thank you very much. We appreciate all of you being here, and we appreciate the statements that you have made here this morning.

Let me just kind of lead off here and get right to the heart of this, which is two-fold for me. A, as someone who has cared about the environment and worked for the environment, both in my role as a member of the Armed Services Committee but also in my role as a member of the Resources Committee and before that on another committee known as the Merchant Marine and Fisheries Committee, which is back in the old days before everybody at this place on this panel with the exception of Mr. Hefley who is older than me——

[Laughter.]

Mr. HEFLEY. By a week.

Mr. SAXTON. By a week. And now he is getting grumpy. [Laughter.]

Mr. HEFLEY. I object. [Laughter.]

Mr. SAXTON. We certainly are all of the mind that we want you to be successful in helping our society to rid itself of these materials. We also have questions at the same time as to the safety of the process, and I would just like to talk about that for a minute, because it is of great public concern.

I have in front of me a newspaper article that will demonstrate for you the depth of concern of the citizens of a neighboring State

in New Jersey, that being Delaware. Let me just read the first several paragraphs here to give you a sense of the concern of citizens and their representatives.

It says, "The Delaware Senate approved a resolution Wednesday urging the Army to abandon a plan to send nerve agent disposal waste to a treatment plant near the Delaware Memorial Bridge in New Jersey. Backers of the resolution called the 17 to zero vote a clear signal of community disapproval. Four lawmakers abstained from voting on the non-binding resolution which will go to the house. The resolution focused on a Defense Department proposal to send as much as four million gallons of, quote, 'caustic wastewater,' from an Army VX stockpile in Newport, Indiana to an industrial wastewater treatment plant at the DuPont Company, Chambers Works in Deepwater, New Jersey. Delaware lawmakers acted quickly on the senate proposal."

Now, Mr. Decker mentioned environmental permitting issues, and I would just like to talk about that for a minute, Dr. Klein, to have you explain to us the process that you go through. And let's use this case as an example so that we can understand what it is that you need to do, where you are in the process, how the States interact in the permitting process and the steps that—I am sure you think this is a safe process—or I shouldn't put words in your mouth, but I assume that you wouldn't do anything that you thought was unsafe and therefore it is fair to assume that you think it is probably safe.

So could you just explain to us the permitting process and how you see the situation at the Delaware Deepwater Plant in New Jersey currently?

Dr. KLEIN. Certainly, Mr. Chairman. What I will do is make some opening comments and then turn those over to Secretary Bolton and the Army as the executive agent for actually getting those permits.

One of the things that we always do in terms of our chemical demilitarization process is safety is number one. The environment is certainly right there along with safety. The facility that is being considered for the disposal of the hazardous waste from both the Aberdeen and the Newport, Indiana plant are at facilities that have been licensed to conduct those. So we certainly expect those to follow all of the environmental permits, and that will be handled through the Army as executive agent. As far as the exact procedures, I will deflect the details to Mr. Bolton, as the executive agent to do this.

Mr. SAXTON. Deflect or refer? [Laughter.]

Dr. KLEIN. Probably both.

Secretary BOLTON. Newport is going through a neutralization setup and one of the products is actually making a waste product also. It is not a nerve agent, not a chemical weapon, it has been neutralized, but it is caustic waste most of all. We tried earlier, as I mentioned in my opening statement, to subcontract that waste to another facility. We were not able to get that done because of permitting issues, and so we went to DuPont. DuPont, as Dr. Klein has already mentioned, did license. It was not a question of getting a license, but the question is will ours meet their licensing requirements.

Mr. SAXTON. Could you explain what that means, please?

Secretary BOLTON. It means whether DuPont, whether the folks in Ohio they have a permit. The Environmental Protection Agency (EPA) said, "As long as you have this permit you can conduct business," and so they have already gone through the process of being certified by the state, by other regulatory agencies, conducted tests of this type of waste product.

So when DuPont or any other company accepts this, they must make sure that they are within their permits and guidelines. And so they will take a look at our product and test it. Unlike the site we were using before, DuPont has the only system to make sure that what we give them is what we told them they are going to get. Of course we test it before it leaves the plant. Before it leaves the plant, it has got to go through our guidelines, so there is no live agent in the waste product.

In terms of volume, DuPont processes, what, 30—50 million gallons a day. We will have, just approximate, though, in fact we list the percentages, we are at 1–500th of 1 percent of the materials that go through there. So it is totally insignificant as far as they are concerned. And by the way, they have been doing this for 27 years. So we have high confidence that they know how to take care of this waste product. We have high confidence that it will be a waste product and not a nerve agent. Otherwise we wouldn't ship it.

Now, what are the consequences if we are not able to do this? By the way, we went to the committee and most States, Delaware and New Jersey, we have had public forums, we have extended the public period another 30 days to allow comments from them after the last sessions that we had on the 17th and 19th of March. If there are any comments, we and the company can review those to see if there is anything that we should do to make sure the citizenry are satisfied that we are doing things in a safe and responsible manner. In doing that, we have actually delayed operations at Newport.

Now, if it should all come for not for whatever reason, either we can't convince the company that we are giving them the right waste product or the public says no, there are pressures there, then we have no alternative but to look at Newport and to build back the treatment facility at Newport. That will delay destruction of the materials there, and it will increase the cost. Our intent is to get rid of the chemical materials as quickly as possible but safely. Safety is number one. To do that we believe that going to DuPont is a way of doing that that can be done safely and allows us to go ahead and destroy the chemical stockpile there at Newport.

Mr. SAXTON. Did I understand you to say that the permitting process has been completed under a more general permitting process by the Federal EPA as well as by the States?

Mr. PARKER. Sir, the permit to operate Newport, the primary site where the VX will be completely destroyed, has been through its full permitting process. The State of Indiana is the ultimate arbiter for that location. We are still in the process of satisfying the National Environmental Policy Act procedures for the transportation treatment of the material at Deepwater, New Jersey. That decision has yet to be made.

We have had a number of public meetings, 17, 19 March, both in New Jersey and in Delaware. We are in the process now of going through the public comment period, and that will lead up to a decision on whether or not to proceed with that option. So with regard to the NEPA, National Environmental Policy Act, that is still open, we are still in the process of satisfying that.

DuPont, as Mr. Bolton said, holds a permit issued by the State of New Jersey for the purposes of operating their facility. DuPont has conducted an independent assessment of the treatability of the neutralized product from Newport to make sure that it can satisfy all the requirements of the State of New Jersey and their permit. Those treatability studies have been looked at by two independent sources from the operating facility in New Jersey, one by an internal DuPont laboratory and one by the University of Virginia at Blacksburg, to conduct an independent technical assessment of DuPont's treatability study. All of those results have been favorable, fully compliant with the terms of the permit issued by the State of New Jersey and free of any derogatory effect on the Delaware River.

Mr. SAXTON. And when are these permits issued? Do you happen to know that? Maybe that is an unfair question because that is probably a detail that you haven't dealt with for a while. But is this a permit that is issued on an annual basis or is it a permit that is issued for some period of time?

Mr. PARKER. The operating permit for the facility at Deepwater, as I understand, is on a 5-year basis and that it allows within a ceiling value, which I believe, although it would have to be verified by DuPont, I think they can treat up to 18 million gallons a day of product in accordance with the criteria established by the State of New Jersey's environmental regulatory authority. So they have a 5-year operating permit, and that would cover the period of time that would be necessary to treat the material from Newport.

Mr. SAXTON. And I guess Dr. Klein or someone mentioned that—I guess it was Dr. Klein mentioned that the material before it is shipped from Illinois to New Jersey——

Dr. KLEIN. From Indiana.

Mr. SAXTON [continuing]. From Indiana to New Jersey, thank you, is tested for toxicity and perhaps other types of tests. Can you explain that?

Dr. KLEIN. Sure, Mr. Chairman. What they do—again, I think in responding to some of the comments that Representative Smith made early on, I think the Army did a good job in looking at alternatives, both for cost and schedule to do this and in a safe and environmentally safe manner.

The material before it is transported is tested to make sure that it is under classification of hazardous waste, not a toxic material. They have very fine analytical capabilities to do that today, it is very standard, and this is a technique that has been proven. I think the fact that we have been doing this at the Aberdeen site has demonstrated it is a technology that we understand. Nothing is shipped off the Aberdeen site. We ship material off, it is tested before it goes, so this is a very standard process, and it has been handled, I think, environmentally sound.

Mr. SAXTON. And when it arrives at the site of final disposal, DuPont, is it tested by New Jersey officials to satisfy their requirements?

Dr. KLEIN. I don't know the answer to that. Mike, do you know?

Mr. PARKER. Yes, sir. It will be tested by DuPont under the oversight of the New Jersey Department of Environment (DEP), which will audit and assure that DuPont is following the appropriately procedures and the necessary quality control-quality assurance measures are in place.

Mr. SAXTON. Now, is there a Federal EPA issue here in terms of issuing a permit as well? How does EPA fit in with New Jersey DEP? How do they work together, or do they?

Mr. PARKER. My understanding in this area it is a delegated authority from the Federal Government, from EPA, to States, in this case the State of New Jersey. So there is EPA involvement in overwatching what the State of New Jersey does to assure that it is following the Federal guidelines. But the day-to-day actions of overseeing DuPont would be done by the State of New Jersey and in the case of Indiana where the VX is completely neutralized, the State of Indiana conducts independent oversight and assures that the operations at Newport are executed properly, and, as touched on, will assure that the methods used by the Army and our prime contractor to assure the VX is completely destroyed are being effectively applied.

Secretary BOLTON. Mr. Chairman, I would also like to point out, as Dr. Klein mentioned just briefly, that we have been doing this for several months at Aberdeen. We have been shipping that neutralized waste product via truck over highways to even more densely populated areas with absolutely no problem and going through all of the Department of Transportation (DOT) and all the EPA and all the regulatory procedures, and that has worked out very, very well, to the same plant.

Mr. SAXTON. Well, I can understand from your context how you can say, "No problem," but if you are on this side of the table——

Secretary BOLTON. I understand, sir.

Mr. SAXTON [continuing]. It might be different. I am sure that as time goes on we will have more questions involving these safety issues. It is comforting in a way to know that the New Jersey DEP has a watchful eye on this and has a responsibility because of all the DEPs, environmental protection organizations that I have come into contact with, it is about the toughest, and I speak from a long period of experience with the New Jersey Department of Environmental Protection. But we may have more questions on this issue, so if you will stand by for us, we would appreciate that.

And at this point, I won't monopolize the time, we will go to Mr. Smith.

Mr. SMITH. I don't have any questions.

Mr. SAXTON. Mr. Kline.

Mr. KLINE. Thank you, Mr. Chairman. Thank you all for being here today. Dr. Klein, always a pleasure to see you. We are still working on the name spelling issue. [Laughter.]

Mr. KLINE. I have a feeling I am not going to win on that one since a close look at the German language actually has you right.

I don't have a specific question except to say that we are anxious that we will be able to proceed with this process as quickly as we can and safely and cost effectively. And I remain troubled today in listening to the testimony of all of you that we just seem to not be able to move as fast as we all would like to be able to to get rid of these materials. So I am listening intently and encouraging you to do the very best that you can, as quickly and safely as you can.

Thank you, Mr. Chairman. I yield back.

Mr. SAXTON. Thank you.

Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman. Earlier, Mr. Conklin made a statement that based on the GB rockets that have been destroyed at Anniston today, about 12 percent of the risk to the community has been eliminated. But when the balance of the GB and VX rockets are completely destroyed what would you say the risk factor will be at that time? How much will it have been reduced?

Mr. PARKER. It is almost 97 percent of the risk is eliminated once the nerve agent munitions are gone.

Mr. ROGERS. And in what time table do you think we will have those rockets eliminated by?

Mr. PARKER. We anticipate having all of the GB munitions, the M–55 GB rocket and the GB-filled projectiles, completed by the end of calendar year 2005, and would then go through a changeover period, a rather extended period of time, and then go into VX operations which would run about a year and a half, which would take us out toward the end of calendar year 2007.

Mr. ROGERS. At the end of calendar year 2005 when those GB rockets are destroyed, what level of risk will we have eliminated at that point?

Mr. PARKER. I think it is about 60 percent, 60 to 65 percent.

Mr. ROGERS. And recently there has been a retest of the PCB levels there at the Anniston Depot. Could you discuss that for us?

Mr. PARKER. Yes, sir. First of all, I think to frame the issue of concerns, legitimate, very legitimate concerns given the history of the area with PCB emissions from the plant during the 8 months that we have been in operation, I would like to just make very clear that the levels of PCB, even based on the prior test, were extremely, extremely low, well below any health effects or environmental thresholds.

We recently completed the retest due to some anomalies in the first series of testing, and based on a much stricter testing protocol in the area of how the samples were acquired and the analytical lab that conducted the results, we were able to demonstrate the we exceeded the destruction threshold under the Toxic Substance Control Act requirement. So the emission levels of PCB are negligible and have been throughout the rocket disposal operation.

Mr. ROGERS. And do you expect the EPA permit to be issued?

Mr. PARKER. Yes, sir. The results are in the hands of the EPA, and I shouldn't really speak for them, but I think we are very confident we will see the Toxic Substance Control Act compliance issued here in the very near term.

Mr. ROGERS. I heard you talking a little while ago about you expect your Umatilla, Pine Bluff and Newport facilities to be operating pretty soon. What are the lessons learned from the safety

measures taken at Anniston that you think are going to be carried forward to those installations that make them just as safe as Anniston is?

Mr. PARKER. Well, we have instituted many years ago and recently upgraded the programmatic lessons learned program, as we call it. Anniston was a particularly good start-up for us. It went very smoothly, both in an operational context and more importantly in a safety and environmental compliance context. We did take a number of lessons learned out of Anniston on how some of the process equipment is maintained and having to do with maintenance cycles and the planned shutdowns for the purposes of cleaning and repairing and servicing equipment. We took that lesson out and we have already taken that and inducted into that start-up procedures planned for Umatilla and Pine Bluff.

In the area of safety, we have looked at the start-up procedures which were very successfully applied at Anniston where we processed a very small number of rockets, took a pause to ensure all of the operating parameters were in the appropriate range and all of the monitoring data was within compliance. And then we iterated up increasing gradually the through-put of the plant to demonstrate we could control both process and meet all those standards. We will duplicate that again at Umatilla and Pine Bluff because it was so successful at Anniston.

Mr. ROGERS. That is all the questions I have, Mr. Chairman.

Mr. SAXTON. Thank you very much.

Mr. Lobiondo.

Mr. LOBIONDO. Thank you, Mr. Chairman.

Secretary Bolton, I think you mentioned that there was—and just by way of reference, DuPont is in my district. I think you mentioned that DuPont was not the first site, that there was a permit problem with the other site. Are you at all—can you tell us anything about where that other site was and what the permit problem was?

Secretary BOLTON. The other site was in Dayton, Ohio, and we asked our prime contractor to go and find a facility that handled this waste product, and the first one they contacted that could do this was located in Dayton, Ohio. In order to use that facility, we ultimately had to get permission from the Water Board there to allow this to happen. The company had a permit, if I remember correctly, Mike, and it was a matter of making sure, as we are doing with DuPont, that we can provide the material, this waste product, that could meet this permit that the folks in Dayton had and the Water Board was the one that was going to issue that.

As we went through this, my recollection was that we were not able to get permission from the Water Board till all this happened, not because of the material itself. It was tested and we thought we could stay within the balance there. But for reasons that I don't know, we were not able to get a permit through the Water Board and so we went elsewhere.

Mr. LOBIONDO. Okay. Mike, do you want to add to that?

Mr. PARKER. Sir, the treatment facility was Perma-Fix, as Mr. Bolton said, near Dayton, Ohio. They would do the treatment of the neutralized product from Newport at this facility and then their procedure was to discharge into a sewage treatment plant in the

local area where then the material is processed along with the other municipal waste and then discharged into the Miami River. The authority for the sewage treatment plant would not agree to allow Perma-Fix to discharge into their sewage treatment plant.

Mr. LoBIONDO. So there was a permit through the State of Ohio, but then a local permit was denied? Was that the process?

Mr. PARKER. Yes, sir. The plant was permitted under the oversight of the State of Ohio and their treated product, which they—and they treat a significant quantity of industrial waste that is then discharged into the sewage treatment plant so that a local Water Board controls that permit. So there were two permits that had to be satisfied.

Mr. LoBIONDO. Okay. So in the case of DuPont and Deepwater, the State of New Jersey you said has issued a permit. Is there another permit that is needed from locals as there was in Dayton?

Mr. PARKER. No. This is under the—as I understand it, strictly under the auspices of the State of New Jersey.

Mr. LoBIONDO. Okay. So the one permit that is been issued by DEP is the only permit you need.

Mr. PARKER. Yes, that DuPont needs to operate the facility.

Mr. LoBIONDO. Needs to operate the facility. And, in turn, accept the material from Indiana.

Mr. PARKER. Yes, along with the other materials, as Mr. Bolton touched on. They treat 15 million gallons a day of material through the plant. We are talking about adding 10,000 gallons of material to 15 million gallons that they already process in the plant on a daily basis.

Mr. LoBIONDO. And I know you talked about this, and I just wanted to join in and echo what Congressman Saxton on the questions that he asked, but at this stage, what are your next steps for this being reality? You said in your statement that if this does not happen for a number of reasons, what might that be? How are you deciding now what fits in? And I need Dr. Meehan to ask again of—and you explained this a little bit—of what interaction is the CDC having on this particular issue and how are you all looking at what the CDC has done?

Mr. PARKER. Sir, as I mentioned earlier, we are in the process of the public comment period required under the National Environmental Policy Act. Just recently, I think the New Jersey delegation, including you, signed a request of the CDC to take an independent look at the proposed treatment at DuPont. Before the Army would make a decision under the NEPA procedures, we will await to see what the CDC comments and observations are and fully consider that before proceeding with a decision and advising our contractor, Parsons, to enter into a contract with DuPont.

That same information, obviously, would be—CDC information would be provided to DuPont, and I am sure DuPont, really as the world's premier safety and environmental corporate entity, would make their own judgment based on the additional information passed from CDC whether or not they want to treat the waste. So I think we will give full consideration and look forward to the CDC input.

Dr. MEEHAN. Regarding our involvement, sir, as I stated in the testimony, generally, once the waste product is free of lethal chemi-

cal agents, traditionally, our involvement had ended and we have turned it over involvement of other regulatory authorities that deal with toxic waste and that sort of thing. We are aware of the request for us to review the documents from DuPont and, as I said in the testimony, we are happy to provide technical assistance and consultation and review those documents.

To the extent we have expertise, we have perused very quickly those documents, and we know that we will have to work with the Army to get some assistance in reviewing some parts of those documents, because it may be beyond the expertise of our specific staff, but we can work with the Army and contractors to do a review and provide technical assistance.

Mr. LOBIONDO. Do you have an guesstimate of the time table of your involvement?

Dr. MEEHAN. Well, we just received those documents and very quickly perused them, so I can't really give you a specific idea because we don't know how complex those are.

Mr. LOBIONDO. Okay. I thank you very much, and I, again, join with Congressman Saxton in requesting that as this very sensitive issue moves forward if we have additional questions, we have the ability to contact you for comment.

Thank you, Mr. Chairman.

Mr. SAXTON. Thank you.

Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman.

Gentlemen, thank you for being here today. I just want to take a little bit of a different track if I could. I am curious to know when the original Chemical Weapons Treaty was signed, I know there are some 170-odd nations that signed on and not all of them have chemical weapons programs. But of those nations that did not sign the treaty, now many were they and who are they? And of those that did not sign, which do we suspect as having chemical weapons programs?

Mr. PARKER. I will answer that question, sir. Those nations that did sign obviously were those with signatures and then there are other nations that became ratifying nations. Of the nations that we are aware of with the greatest possessions of chemical weapons, which is Russia, United States, India, we have all ratified and signed on and begun destruction efforts thus far. Obviously, the other part you are referring to about other nations who perhaps may possess weapons and whether they have declared those stockpiles is a classified piece of information. We would have to get that to you separately.

I might add most recently Albania has declared a weapons stockpile, and, of course, as you know, Libya has as well. They have become part of the Organization for the Prohibition for Chemical Weapons, and they have in fact had recent inspections in these countries as well to look at the stockpile and they are working on destruction efforts as we speak.

Mr. LANGEVIN. I would like to follow up with a classified answer.

[The information referred to is classified.]

Mr. PARKER. No problem.

Mr. LANGEVIN. Moving on, I would like to know what are the consequences or penalties if the U.S. does not meet the Chemical

Weapons Convention deadline's total destruction of weapons stockpiles by 2007 or 2012 if an extension is granted? And also how are other nations fairing in their efforts to attain their Chemical Weapons Convention goals?

Mr. PARKER. The first part of your question is really actually quite undefined. We have asked ourselves that question and we have used legal counselors as well as part of this. The treaty actually provides that the nations should destroy those declared weapons and destroy them in a timely fashion. The deadline was set for 2007.

The treaty also provided if you could not complete 100 percent of your destruction, there was a 5-year provision that was allowed for the unanticipated consequences that any nation may experience, both technical, regulatory or otherwise. Obviously, we are experiencing similarly the same thing as many other nations.

The U.S., for instance, we are to have completed our 45 percent destruction deadline this coming year. We were not able to meet that. We have sought an extension for that deadline. We have received that from the Organization for the Prohibition for Chemical Weapons. We have now defined a new deadline as December of 2007. The other nation with the greatest possession is Russia. At this point, Russia has just met its 1 percent milestone which should have been met many, many years ago in fact. Russia has also sought extensions to their deadlines, and they have received extensions at the same time the U.S. did just this last October. In principle, the U.S. has received an extension, not the official but in principle to the 100 percent deadline, to 2012. Obviously, we are going to have to answer that in a very formal fashion to the U.S. Government and to the organization when we do that.

Dr. KLEIN. I think if you look at the treaty when it was signed, roughly, in 1997 with a 10-year period for the destruction, they understood that it was technically and politically difficult to carry that out, which is why they had the 5-year extension. And I think, clearly, Russia will not meet their 2012 deadline with the 5-year extension.

Mr. LANGEVIN. The program's method of destruction has gone from incineration to neutralization followed by bio-treatment, and it is now pursuing neutralization by supercritical water oxidation. And I know you have talked a little bit about this this morning but for those of us present who don't have a background in chemistry, could you describe in maybe a little more detail how the processes work and what are the advantages and disadvantages of each?

And the other part of my question, has the Army studied the possibility of plasma conversion, which is an emerging technology that uses temperatures up to 30,000 degrees Fahrenheit to neutralize hazardous agents?

Mr. PARKER. Sir, we are using multiple processes or multiple technologies. As you touched on, four of our facilities will use an incineration-based technology, four will use a neutralization-based primary followed by bio-treatment or supercritical water oxidation or treatment at an off-site facility for secondary treatment.

In summary, the primary advantages, say, neutralization, it is a very well-established commercial process, very well-understood. We have operated many years at Johnston Island at the facility at Des-

eret, Utah, the Tooele Destruction Facility. And those are incineration facilities. As was touched on by Mr. Rogers, we just went through a very, very successful start-up at the Anniston plant, which is an incineration-based plant. We anticipate equally as effective start-ups at Pine Bluff and Umatilla because we are operating on a very well-established technology that we have operated at a number of facilities and we understand very well.

The neutralization facilities are a new technology and we will go through some learning pains as we bring those technologies online. The one facility we have online at the Aberdeen Proving Ground has presented us a number of technical challenges as we have tried to start that plant up. The benefit of going through a staged start-up, Aberdeen, then Newport, then the facility at Pueblo, Colorado and eventually Bluegrass, Kentucky, is that we will learn as we go along, as we have on the incineration side. So as those technologies mature, we will do better on subsequent start-ups.

At the end of the day, the technologies as far as being effective and destroying the material, in the cost sense, the impact on the environment, the fundamental to the workforce or the communities are basically awash. If you look at it, the incineration facilities operate well within any emission standards that present a health risk. We anticipate the same for the neutralization facilities. The generation of secondary waste and the challenges in dealing with that are different facility to facility but both manageable within the standards.

And could I get you to repeat the last point on another technology which you——

Mr. LANGEVIN. It is an emerging technology called plasma conversion, and it basically used temperatures up to 30,000 degrees Fahrenheit to neutralize hazardous agents.

Mr. PARKER. We looked at plasma as a potential technology as directed by the Congress as a result of Public Law 104–208, and plasma technology, while it is different than an incinerator in its technical definition, it has many of the same characteristics of an incinerator. It just happens to operate at a higher temperature which once you get above a certain point and you have fully oxidized materials, the temperature really is irrelevant. The plasma technologies were not mature enough at the point in time that we had to make technology decisions for the program.

Mr. LANGEVIN. When did that review take place?

Mr. PARKER. The technology decisions were made in the 2001–2002 time frame. And the plasma technology was evaluated under the Assembled Chemical Weapons Assessment Program in the 1998 to 2001 time frame.

Mr. LANGEVIN. Has it been reviewed since then?

Mr. PARKER. It has been looked for potential application on the non-stockpile program as a technology that potentially lends itself toward a small mobile operating units. In comparison to other viable technologies, such as the explosive disposal system for small scale disposals, it was found to be less cost effective and generated more secondary waste than the chosen technology.

Mr. LANGEVIN. Thank you, gentlemen.

Mr. SAXTON. The gentleman from Colorado, Mr. Hefley?

Mr. HEFLEY. Thank you, Mr. Chairman. On the 8 chemical weapons stockpiles planned for destruction by DOD, why is the Pueblo, Colorado site proposed to be cut $147 million, which I think effectively will stop that program for 2005? And does a cut of that magnitude not place the entire Pueblo program in long-term jeopardy?

Dr. KLEIN. Let me attempt to start to answer that one, and then my colleagues can join in. As all individuals have to do, we have to balance budgets, and under the CMA Program we had some real needs identified early on in the planning stages. In addition, for the Pueblo site, it appears that the ACWA Program would not be able to expend all the funds that they had. They have some carryover funds.

I personally met with the representative from Colorado three to four times. I have been out there at the Pueblo site. We want to assure you that there is no intent to leave any indication that we are not addressing the concerns of the citizens of Colorado, and we certainly want to destroy those chemical weapons in a timely fashion.

As we move through the actual operation of fiscal year 2005, we will make any budget adjustments that we can to expedite all of our sites. This was just based on the information we had when we needed to submit the President's budget, it seemed to be the best use of the taxpayers' money. We also had an issue where we really want to examine the design, the preliminary design at the Pueblo site. It looked like it was getting a little bit too large, and so we looked at some alternatives to that area. So I just want to assure you that we definitely are moving forward with Pueblo. We do not believe that it will have a serious impact on the schedule at this point, the ultimate life cycle.

Mr. HEFLEY. I guess what is the plan for Pueblo, because we have a plan, we think we are operating? As far as I know, there are World War I agents there, so we have had that stuff there for a long, long time? What is the basic plan and schedule for Pueblo?

Dr. KLEIN. You will see a lot of activities for construction under the military construction (MILCON) budget for the Pueblo site during 2004–2005, and the plan is to use a neutralization technology to dispose in a safe manner the chemical agents.

Mr. HEFLEY. At one point, there was—the idea was floated of moving those agents to Utah where we already have a plant and disposing of them there. Was that ever a serious thought, and is that thought still alive?

Dr. KLEIN. After 9–11, we looked at a lot of options, because we viewed those sites as potential terrorist targets, and so we looked at a lot of options. In my opinion, at this point, it is unlikely that we will move those at all. Again, when we compared the risk of transportation versus the risk of neutralizing the agents at the Pueblo site, the community was much more in favor of having those weapons neutralized on-site rather than shipping them offsite.

Mr. HEFLEY. The community sure would be, but what about the tax dollar? Which is the cheaper way to do it? You have got a plant out there—I am not pushing that idea except I just want to know what the thinking is.

Dr. KLEIN. We did look at that in terms of cost. In our estimates at the time it was about a wash.

Mr. HEFLEY. About a wash?

Dr. KLEIN. And, again, all of these factor into how long does it take you to get the permit, how long does it take you to build the plant, how long does it take to operate? If we could turn back time, it would have been nice to have moved all of these early, early on when we had the Johnston Island facility still in operation, but that time has passed. And so what we have to do now is just make the best decision we can with the taxpayer and the safety in mind.

Mr. HEFLEY. Do you have any idea when we anticipate actually beginning destruction there in Pueblo?

Secretary BOLTON. Like I said, about 2007, I think.

Mr. PARKER. Depending on the decision which is currently at the OSD level for a determination on when we would lock the design down, but the current schedule would call for initiation of pilot operations in about 2009 and full-scale operations—I am sorry, 2007 for pilot operations; full-scale operations, 2008 to 2010.

Mr. HEFLEY. To be finished when?

Mr. PARKER. Two thousand ten.

Mr. HEFLEY. To have it all done by 2010?

Mr. PARKER. Yes, sir. The agent operations. There would be a couple years after that to decontaminate and close the facility, but the agent operations would be completed in 2010.

Mr. HEFLEY. Okay. Thank you very much.

Thank you, Mr. Chairman.

Dr. KLEIN. One of the things that we did for the Colorado representatives, we have an individual, Mr. Klump, that participates in a lot of our meeting so we can enhance the communication between Department of Defense and the citizens of Colorado.

Mr. HEFLEY. Okay. Thank you.

Mr. SAXTON. Dr. Klein, as you have indicated here a couple of times in your testimony, following the recognition of threats posed by terrorism, a decision was made to try to accelerate the disposal process. And as we look at the trend line in spending, while the process has been accelerated, we don't see commensurate increases in the budget. Can you speak to that issue and tell us how you can accelerate the process when your budget doesn't seem to be accelerating?

Dr. KLEIN. Well, Mr. Chairman, when we looked after 9–11 we wanted to use a lot of technologies to the extent that we could to neutralize these agents as quickly and certainly as safely as we could. It turns out that the speedy neutralization process will cut time, but it is almost cost-neutral. In other words, it will get rid of the materials, toxicity and hazards earlier but not a lot of cost savings. I think what we need to look at in terms of we want to destroy these elements as quickly as we can but with safety as paramount importance. We have quarterly meetings between Secretary Bolton and I to make sure that we are on track, on task as much as we can.

One of the challenges, as Mr. Parker indicated earlier, is the Aberdeen site has had some technical challenges that we did not expect, and it is not going as speedily as we had expected.

Mr. SAXTON. Thank you.

Mr. PARKER. Mr. Saxton, within the budget if you look at it below the top line and you look at it by the sub-appropriations—operation and maintenance, procurement, construction—I think you will see that as we have completed the construction activities, the money has moved from MILCON and procurement to much more heavily focused on operation and the maintenance money. So that you really need to look below the top line.

Having said that, as a Director, we would certainly—anything the Congress would wish to add to it It is certainly your discretion.

Mr. SAXTON. We thank you. [Laughter.]

Mr. SAXTON. In 1986, we passed the National Defense Authorization Act, which established the Chemical Stockpile Destruction Program and it mandated that it be established as a defense-wide program and not be part of the budget of any single service. However, today, the program is being carried out by the Army, and I believe in this case being paid for by the Army's budget. If that is true, then why—how does this comply with the 1986 law?

Dr. KLEIN. The Army is the executive agent, but this is a defense-wide account. It is not an Army account. The Army is the executive agent, but it is a defense-wide account.

Mr. PARKER. In fact, Mr. Chairman, I would add to that that in the language of 2 years ago, the committee was very clear about the need to make this a defense-wide account. In fact, the department took that seriously and in fact made this a defense-wide account and in fact executes in that particular fashion. It is in Title 6, which is a defense-wide account other.

Mr. SAXTON. What happens if there are increases in the budget? Is that a defense-wide increase as well or does the Army have to bear that burden?

Mr. PARKER. Each and every one of the increases are handled on an instance-by-instance basis. As part of the deliberative process within the Department of Program Budgeting Cycle, we look at those. Thus far, the Army, while we have asked and in some cases we have told them that they would have to absorb some of the increases within the existing budget, in no instance has the Army ever put its individual money, if you will, Army total obligation authority into this program.

Mr. SAXTON. So all the money comes out of the defense-wide account.

Mr. PARKER. Indeed.

Mr. SAXTON. And the Army doesn't get tapped for it.

Mr. PARKER. The Army does not pay for it.

Mr. SAXTON. Thank you.

Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman. I want to follow up briefly on something I talked about and something Mr. Langevin addressed. When we talked about the Anniston Depot, it is operating safely, but I also understand it is operating on schedule. Is that accurate? You indicated that by 2007 we would have 97 percent of the risk eliminated and that the GB and VX rockets would be eliminated. Is that on schedule? Are we ahead of schedule? Are we behind schedule in Anniston?

Mr. PARKER. Mr. Rogers, at this point in time we are ahead of schedule. We are doing better on M–55 rocket disposal. We are

moving nicely toward being able to start operations a little later this year with the projectile portion, the GB projectile portion of the stockpile. So Anniston is performing extremely well.

Mr. ROGERS. But now I look at this GAO extension, this deadline filing that we are talking about for the stockpile-wide. Are we going to be able to complete our mission at Anniston without the extension?

Mr. PARKER. Within the context of——

Mr. ROGERS. The CWC requirement.

Mr. PARKER. Assuming that the department, in conjunction with the State Department, would go forward and seek the extension to 2012, we believe we will complete operations at Anniston well within that treaty deadline.

Mr. ROGERS. So even though we will have eliminated 97 percent of the risk to Anniston by 2007, we will need that additional time there to eliminate that remaining 3 percent of the risk?

Mr. PARKER. Yes. I think, as you are aware based on briefings to yourself and your staff, the mustard-filled munitions, of which Anniston has a rather significant quantity, really are very, very low risk.

Mr. ROGERS. Right.

Mr. PARKER. Almost half of the munitions at Anniston are mustard-filled. The predominance of the risk to the community, to your community is that with the nerve agent munitions, which we will get rid of about the 2007 time frame, so we will eliminate the risk but there is still a very large quantity of munitions that will have to be processed through the plant.

Mr. ROGERS. And then going back to what Mr. Langevin just addressed, the stockpile-wide, are we not going to be able to hit the 45 percent ratio by 2007?

Mr. PARKER. Based on our ability to bring on three additional plants this year, as the facility at Newport, the facility at Umatilla and the facility at Pine Bluff, we are highly confident at 80 to 90 percent level of the ability to satisfy that December 2007 date for 45 percent.

Mr. ROGERS. And if we receive that extension to 2012 to hit the 100 percent level, do you feel confident that we will be able to achieve that target?

Mr. PARKER. That is much more of a challenge, it is much more problematic and it will be very dependent on what the overall outyear budgets are and how affordable they are. The final two sites, the Pueblo site that Mr. Hefley touched on and the Bluegrass site, are going to be pressing up very, very hard on 2012, and depending on how the overall budget and the availability of funding to accelerate those sites will determine whether or not we will be able to hit that 2012 mark.

Mr. ROGERS. Thank you very much.

Thank you, Mr. Chairman.

Mr. WAKEFIELD. Mr. Rogers, let me just add one thing if I could to that, the question you had on the 45 percent. We went through that very deliberative process using the formal processing rates as well as looking at them on an individual basis, on a campaign basis by each one of the sites and statistics. We looked at that and we looked at it in confidence intervals and saying what is the greatest

confidence that we could have in achieving that 45 percent? That is indeed why we picked the December 2007 deadline giving us the greatest confidence the U.S. will meet that deadline. That was a 90 percent confidence factor that we would make that date at that time.

As you pointed out, the facilities are running. As Mr. Parker has also indicated, the other ones need to come up online, but right now we still remain quite close to that confidence factor even with the recent look at it—when I looked at it about 2 weeks ago, we still remain there. The 2012 deadline, as you heard Mr. Parker indicate about budgets and other things, you also heard about the technical challenges that are often experienced when you begin facilities and new technologies as well. Each of these are factors that enter into our success in achieving those end dates.

Mr. ROGERS. Now, as I understood Mr. Parker, it is more of a budget-driven concern than a technical concern.

Mr. WAKEFIELD. Any time we start new technologies and facilities, there is always technical challenges, and those are part and parcel to successful operations.

Mr. ROGERS. But do you see that as a dominant challenge of——

Mr. WAKEFIELD. I see as just part of the overall challenge itself, not anything more dominant than the other but rather just part of the overall challenges that are there.

Mr. ROGERS. Thank you.

Mr. DECKER. Mr. Rogers, may I make a comment, and I don't want to be the skunk at the party but I think that the optimism to reach the 45 percent in 2007 is if all the stars line up exactly right, that there are no challenges with the permitting that has occurred at different sites, that there are no more incidents at a site and that there are no unplanned requirements that have impact on any of the operational start-ups. And, unfortunately, we have seen that type of risk, these issues happen at different times, which means that the readership has to be forward-thinking forward-leaning, anticipating anything that could derail or stop the schedule, and that has not happened.

Secretary BOLTON. Well, let me be the anti-skunk here.

Mr. DECKER. Tomato juice. [Laughter.]

Secretary BOLTON. The last time I appeared before this committee I think we were just starting Anniston. And so we had two going, we were just starting Anniston. Today, we have three. By the end of this year, we hope to have six. Mr. Decker is absolutely right, this is a challenge for the leadership to bring this off. I would highlight one example where we have gone to school on lessons learned to hopefully mitigate some of the concerns that we have.

For example, we talked about Newport and we talked about the challenges we had in Dayton. As a result of those lessons learned, we have spent a great deal of time taking the commander there, going to New Jersey and Delaware and talking to assistants, talking to the media, talking to virtually anyone he can find to explain to everyone what we are doing, what we are trying to do and so forth and working very closely with DuPont.

I think that is an example of what we are doing in terms of looking at lessons learned and making sure that we don't make the same mistake twice if indeed it was a mistake. The other is just

taking lessons learned from Anniston, as Mr. Parker has already pointed out, and putting those into other plants, not only from the technical side but from the programmatic side and how we work with the contractor out there, how we work with the community, and I think that is helping us quite a bit.

And as Mr. Parker has already pointed out to your question on the schedule, we are ahead of schedule, and my hope is that once we get the plants up and get into the operation that we can get ahead of those schedules too.

I do temper that with reality and the reality is looking at the past and realizing that we have significant challenges there. But we have got the right people at the plants, the communities are supportive and with your support and those of the chair and the Committee here, I think we can press forward and meet that date, the first 45 and the 31st of December 2007.

Mr. ROGERS. Thank you. Well, that is why I would asked the question earlier in my line of questioning about the lessons learned, because I hope you were going to take care of the facilities because Anniston is a success, and I think that there have been a lot of challenges along the way but surely the more that we are doing this the better we are getting as we go along, and we don't step on the same rakes.

Secretary BOLTON. And I anticipate that Mr. Decker will keep my feet to the fire.

Mr. DECKER. I think the Congress will do that.

Mr. PARKER. One of the points you just touched on, Mr. Rogers, is in the area of lessons learned. As it turns out, we have the same basic operating contractor in the corporate sense, the Washington group who is currently operating very successfully Anniston and will operate Umatilla and Pine Bluff. So the ability to transfer lessons learned is facilitated because they are in the same corporate structure. And some of the challenges that you touched on, Mr. Decker, in the area of permitting and regulatory oversight, which have been a real problem, we have, I think, reached a very collaborative and productive operating relationship now with the Oregon regulators which up until recently has been a real issue. We have, I think, reached an operating procedure which really will facilitate the start-up of that facility and the operation of that facility later this year.

The relationship in Arkansas has always been one of a very proactive relationship with the regulatory community, so we are optimistic that we will see higher productivity out of these plants than we have historically seen, but, as you have indicated, we will be watching it closely as will everyone else to assure that we are not lulling ourselves into a false sense of security or misplace optimism and misleading ourselves and potentially the Congress as well.

Mr. DECKER. Sir, if I could just comment, I think that the aspect of positive approach, and I think Mr. Parker and his leadership team are trying to do what is useful to accomplish this big goal, but we have seen indications that as you get closer to the operations phase, which really is what this is all about, the safe destruction and destroying the weapons, is that new requirements come in particularly through the CSEPP side that perhaps puts

some impact on whether you startup on the schedule that you have indicated.

And I think that that is a serious issue that I would challenge the team to grapple with through the relationship with FEMA at the State and local level to better understand the practical implications of these new requirements and to assure that there is safety for the community but also the expeditious destruction of the stockpile. And I think that that is a phenomenon that is happening more and more and it impacts your schedule.

Mr. PARKER. Well, we did learn lessons beyond technical lessons at the start-up of prior facilities, ones in Utah and Alabama more recently, and in conjunction with FEMA we meet very regularly with the Oregon CSEPP community, I believe it is on a monthly basis, and we send senior level people out as well as having our local people that are in community continuously to better understand what the issues are, address those early.

FEMA has done an absolutely excellent job of working with the community to get them to understand how to get their inputs in their requirements, rather, into the process so that they can be validated and they can be timely with the budget process, which has been a challenge. But FEMA has done an extraordinarily good job of working with the community. I think we are getting much better information much earlier so that have time to react. I should maybe rephrase that: We have an opportunity to be proactive rather than reactive in trying to address issues in the year of execution where everything gets bound up because the funding is not available, the time lines are not available, et cetera.

So will there be surprises? I am sure there will be, and we will be watching those, but we have attempted not to make the same old mistakes we have made in the past.

Mr. SAXTON. Anything further, Mr. Rogers? Thank you.

Mr. Decker, a couple of questions for you. I will address them to you first and then anybody else can chime in here. I understand that you have—first of all, we are all interested in maximum protection. I understand that you have concerns about the issue of maximum protection, and I would just like to give you the opportunity to express those concerns.

Mr. DECKER. Sir, the term maximum protection I think has caused problems within the program because of the interpretation of what that means. And to give you a for instance, and Mr. Conklin will be able to discuss this in greater detail, I am sure, the CSEPP Program, the program that is outside the fence of the facilities to take care and protect the community in case there is an unfortunate event, was made up of a variety of different mechanisms, and these are benchmarked type items from emergency communications to stay-in-shelter kits and masks in case you have to do an egress.

These benchmarks, which are standard throughout the program, used by the different States and the communities, is a mechanism to give protection to the community, to give them a sense of assurance that there will be—there are devices to help them in case of an incident. I believe what is happening is that there is an interpretation outside of the benchmarks in a more indirect way that then adds new cost to the program through the CSEPP side. And

so my suggestion is, and I think that the program probably has looked at this but perhaps there might be a proactive mechanism, a forum some stakeholder forum, to discuss some of the practical implications of what the definition should mean.

For instance, I think that right now the boundaries on what that means are probably anyone's interpretation, and I think that there perhaps could be better discussion about that issue if we have a shared same goal, and that is the safe destruction of all the stockpile in a timely manner.

But I would ask Mr. Conklin or the other distinguished members here to comment on their sense of this issue. Is it an important issue? Should it be something resolved or should we just continue the way that we are?

Mr. CONKLIN. There is no question that the definition of maximum protection is an open-ended question, and there is no right line definition, if you will, of what that means. And by that I mean there is, for example, the acceptance of a 1 times 10 to the minus 6 risk or 10 to the minus 7 risk. There is no right line number that we have to use so that we do a validation of a requirement we can say, well, the risk is actually 10 to the minus 8, so you don't need to implement this kind of protective action or spend this money on this activity. We don't have that level of definition.

There are some industry standards out there that the nuclear industry uses, for example, the Nuclear Regulatory Commission (NRC) for their facilities, that approaches about 10 to the minus—about 4.7 times 10 to the minus 7. We could come up with a definition but it would take a lot of debate from one State and the counties to another. There is no common acceptance, and at this point in time it may not be worth that extensive an effort. I think we have gotten to a point now where we have a much better understanding of what needs to be done to protect the communities, and I think we have got much greater buy-in from the communities and at the State level also on what needs to be done.

And I think that is reflected, for example, in the Alabama situation where we started working closely together on some of these activities, and the budget has dropped down considerably. A prime example would be the protection of special needs populations in those communities. At one point, the projected budget was about $67 million. It basically would have eaten up most of the annual funding for CSEPP for a year. But in working through that issue and working though the options that were available, we whittled it down to $6.3 million—a 90 percent plus reduction. Not that we can do that everywhere, mind you, but that was a good example of working together at the community, State and Federal level we were able to come up with a reasonable approach to projecting that particular population.

So I think we have made a lot of good headway, and I think if we keep going in the way we are going, we are going to do fine. I think what you see sometimes is that as the sites come close to becoming operational, there is a fear among the State and local folks that that is going to be the end of the CSEPP funding, that once that site goes operational we are going to walk away and they are not going to have the funding to maintain the level of preparedness. And so a lot of our effort right now is to convince them that

that is not going to happen. It has not happened in Alabama, did not happen in the Utah and the other sites, it is not going to happen to the sites that are coming online.

Mr. SAXTON. So what I hear you saying is that by imposing a single definition, you make it harder to work with the communities which express concern, and you try to work with them to make sure their concerns are addressed, and you need a flexible definition to do that?

Mr. CONKLIN. I believe so. And we are working on sort of a definition of functional equivalency such that the amount of activity off-sites for the public is commensurate with the level of risk that they are facing. And that is why it has the destruction of material takes place, that risk goes down and we can revisit the level of protection that needs to be provided and the funding that needs to support it.

Mr. SAXTON. Do you want to comment, Mr. Decker?

Mr. DECKER. I would only ask that I think in October of 2003 there was an $88 million shortfall, unfunded requirements, that came out of the program. And my concern is that in a comment that was to the distinguished member from Colorado was that money was taken from ACWA and moved forward to deal with the near-term situation and some of that near-term situation was these unfunded requirements that came out of the CSEPP area.

So you are taking money from the program and the program money and you are trying to do it in a smart way to deal with an unfunded requirement that in my view perhaps could be mitigated with some dialogue and discussion to see what the practical implications of a definition and what that means to these benchmarks and anything outside the benchmark.

To me, if you can save $1 million in the program, $1 million out of a $25 billion program, It is worth the dialogue to see if you can improve the process to get a better result.

Mr. SAXTON. What do you think?

Mr. CONKLIN. I think we can talk—you know, we can talk with the communities about a definition. I think you are not going to find a common thread among them as to what that level is going to be, and I think that could in the end actually result in delaying attention to some of the other issues we have got going on.

Mr. SAXTON. Thank you. Let me go to a different issue since we solved that one. [Laughter.]

Mr. DECKER. Mr. Chairman, next time would you sit me someplace other than next to Mr. Conklin? [Laughter.]

Mr. SAXTON. We have received the cost numbers from the Department of Defense Inspector General (DOD IG) on the cost of disposal at the various disposal sites. We have the type of agent being disposed at each site, the method of destruction, the original tonnage that was at the site, the percent of the original stockpile that has been disposed of and the costs at each site. And the cost at each site you would expect it to vary. However, the delta in the variance raises some questions.

And I am sure you have got an explanation, but, for example, at, is it Tooele, Utah? Tooele. The cost per percent to destroy blister agent is $54.4 million, and at Bluegrass, Kentucky, the cost per percent of destroyed material is $1,198,000,000. So we go from

$54.4 million in one case to $1.2 billion in the other. Now, that is probably not fair because I see we are destroying blister agent and that is—well, in both cases we are destroying blister agent.

Now, let's just take these two for purposes of discussion. In Newport, we are neutralizing nerve agent, and it cost $305 million per percent, and we have destroyed 4 percent of the overall stockpile, right. At Bluegrass, we have neutralized blister agent and nerve agent, and it has cost us that famous number that I just mentioned, $1,198,000,000 per percent, and we have destroyed 2 percent. Okay. You get it. Could you explain this to us?

Secretary BOLTON. Well, I cannot explain it because I have not seen those numbers, and the sites that you have quoted we haven't done anything at those sites. Oh, they are estimates. Well, even so, I haven't seen the numbers.

Mr. SAXTON. Sorry, I stated it wrong. That was my fault.

Secretary BOLTON. I have not seen that report, I have not seen the estimates, I know nothing of the assumptions. However, if I were to speculate since we haven't started anything on those sites, it would be the same thing as going to any program where you have done all the development work, you have done no production yet, and you have spent lots of money, and someone says, "The cost of doing anything there is whatever you have already spent."

What I am trying to do and what I indicated, Mr. Chairman, to you and the members of the committee the last time is to establish some metrics not unlike the ones that are in that report, although I hope in the future far more frequently, where we would look at costs per ton disposed of materials at various sites along with the safety record. But I will just—unless someone else has some information, I simply have not seen those figures.

Dr. KLEIN. Mr. Chairman, one of the things that you will oftentimes find, for example, if you look at Tooele, there are a lot of tons at that site. If you look at Bluegrass, for example, there are not as many tons and there is also a much greater variety. So when you look at the total cost at each site, you have to look at how many tons are there. And so if you have a lot of tons, the cost per ton are expected to be less at these sites that have a lot.

Mr. SAXTON. That makes sense. We will provide you with this chart, and Gene did the arithmetic. [Laughter.]

Dr. KLEIN. Now we know why there is confusion. [Laughter.]

Mr. SAXTON. If we could give you these numbers and you, of course, can check with the IG. We would like you to get back to us with——

Dr. KLEIN. Sure. We would be happy to.

Mr. SAXTON. It is kind of unfair of us to pop this question at you without letting you have an opportunity, so let's talk about this over some time and if you would get back to us with the rationale.

Dr. KLEIN. Will do.

Mr. SAXTON. Thank you for that.

Mr. Rogers, do you have any further questions?

Mr. ROGERS. No. Thank you.

Mr. SAXTON. I think we have done what we came here to do this morning, so thank you for your participation. We appreciate your statements and your frank answers, and across the board, thank you.

[Whereupon, at 11:52 a.m., the subcommittee was adjourned.]

APPENDIX

APRIL 1, 2004

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

APRIL 1, 2004

OPENING STATEMENT OF JIM SAXTON
CHAIRMAN, TERRORISM, UNCONVENTIONAL THREATS, AND CAPABILITIES SUBCOMMITTEE
HOUSE ARMED SERVICES COMMITTEE

HEARING ON DESTRUCTION OF THE U.S. CHEMICAL WEAPONS STOCKPILE – PROGRAM STATUS AND ISSUES
APRIL 1, 2004

Today, the Terrorism, Unconventional Threats and Capabilities Subcommittee meets to review the Department of Defense program for destruction of the U.S. stockpile of lethal chemical warfare agents and munitions and the Fiscal Year 2005 budget request for the program. We are joined in the hearing by several members of Congress who have chemical stockpile storage sites in their districts and who are interested in the chemical demilitarization program: Gentlemen, welcome.

The U.S. chemical weapons stockpile originally consisted of approximately 31,000 tons of lethal chemical agents in a wide variety of munitions, located at Johnston Atoll in the Pacific southwest of Hawaii and eight sites in the continental United States.

The Fiscal Year 1986 Defense Authorization Act requires that the destruction of the stockpile be carried out so as to insure maximum protection of the environment, the general public, and the workers at the storage and demilitarization sites. Destruction of the stockpile began at Johnston Atoll in 1990 and is supposed to be completed by April 29, 2007 in accordance with the Chemical Weapons Convention Treaty.

As of March 15, 2004, over 8,600 tons, 27 percent of the total stockpile, have been destroyed. 100 percent of the stockpile is now under contract for destruction. Disposal operations have been completed at Johnston Atoll and that facility closed, three disposal facilities are operational in the continental United States, and an additional three facilities could be operational by the end of the year. 7,468 tons of the nerve agent - GB, 78 percent of the GB stockpile have been destroyed. 726 tons or 16 percent of the VX persistent nerve agent stockpile have been destroyed. Much has been done, but much remains to be done.

I have concerns about the program.

We have to seek measures to reduce the time required to destroy the stockpile and we have to seek measures to reduce the cost of that destruction.

The current cost estimate of almost $25 billion to destroy the stockpile is mind-boggling. We must find ways – reasonable and cost-effective ways – to reduce the cost of destroying the stockpile!

Current estimates that the last agent will not be destroyed until 2014 and the last facility will not be closed until 2019 not only add to the total cost of the program, but also place our obligations and commitments under the Chemical Weapons Convention Treaty at risk. They frankly are unacceptable. We must find ways -- affordable ways -- to accelerate the destruction of the stockpile!

Above all, however, we must destroy the stockpile is such a manner that we insure maximum protection of the environment, the general public, and the workers at the storage and demilitarization sites. That was true when Congress mandated the program in the 1986 Defense Authorization Act and is no less true today!

To address the status of the chemical weapons destruction program, the Fiscal Year 2005 budget request for the program, and how the program is being executed, our witnesses today include:

Mr. Raymond J. Decker from the General Accounting Office,

Dr. Dale E. Klein, Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs

Mr. Patrick Wakefield, Deputy Assistant to the Secretary of Defense (Chemical Demilitarization and Counterproliferation),

The Honorable Claude M. Bolton Assistant Secretary of the Army (Acquisition, Logistics, and Technology),

Mr. Michael A. Parker, Director of the U.S. Army Chemical Materials Agency,

Mr. Craig Conklin from the Emergency Preparedness and Response Directorate of the Department of Homeland Security, and

Dr. Patrick J. Meehan from the Centers for Disease Control.

Gentlemen, welcome. We look forward to your testimony.

Before our witnesses begin I want to yield to the distinguished ranking member of the subcommittee, Mr. Marty Meehan of Massachusetts for any opening statement he may wish to make.

Mr. Meehan

(Mr. Meehan's Opening Statement)

Thank you, Mr. Meehan.

I understand that Dr. Klein and Secretary Bolton will offer their statements for the Department of Defense and the Army, respectively, and that Mr. Wakefield and Mr. Parker will be available to answer questions during the question period

Mr. Decker, you'll be our first witness. Please proceed.

The Honorable Adam Smith (D-WA)
Opening Statement
Subcommittee on Terrorism, Unconventional Threats and Capabilities, Committee on Armed Services

Thank you Mr. Chairman. It is a pleasure to sit in as Ranking Member on behalf of Mr. Meehan. Mr. Meehan has an unavoidable conflict, and asked me to extend his regrets and, in turn, welcome today's witnesses.

As this is an important and challenging program, I'd like to associate myself with the Chairman's opening remarks. Not only is public safety at issue, but also considerations of cost, risk, and national credibility. To be sure, we owe to our fellow citizens due diligence in the pursuit of our legal and moral responsibilities. Yet perhaps most paramount for our consideration is the credibility of our word: as a nation we have pledged to the international community the eradication of this materiel by year 2007. Thus, on matters ranging from purpose and execution to moral responsibility, the Chem-Demil program demands attention.

Today's prepared testimony makes note of the schedule slip and cost explosion since the program's inception. In addition, the budget justification material provided recently to the committee highlights a recommended 10% reduction in funding from last year's spending level. I will look for further explanation today on each of these matters; I hope

we are provided assurances that this program remains a priority.

Mr. Chairman, again, I thank you for calling this hearing, and I join you in welcoming our guests.

United States General Accounting Office

GAO

Testimony

Before the Subcommittee on Terrorism, Unconventional Threats and Capabilities, Committee on Armed Services, House of Representatives

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CHEMICAL WEAPONS

Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management

Statement of Raymond J Decker, Director
Defense Capabilities and Management



GAO-04-634T

April 1, 2004

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Highlights

Highlights of GAO-04-634T, testimony to the Subcommittee on Terrorism, Unconventional Threats and Capabilities, Committee on Armed Services, House of Representatives

CHEMICAL WEAPONS

Destruction Schedule Delays and Cost Growth Continue to Challenge Program Management

Why GAO Did This Study

Since its inception in 1985, the Chemical Demilitarization (Chem-Demil) Program has been charged with destroying the nation's large chemical weapons stockpile of over 31,000 tons of agent. The program started destroying the stockpile in 1990. As of March 2004, the program had destroyed over 27 percent of the stockpile. The program has recently reorganized into the Chemical Materials Agency (CMA) to manage seven of the nine sites. There are five sites using incineration to destroy the agent and two bulk agent only sites using neutralization. The Assembled Chemical Weapons Alternatives (ACWA) Program, in the Department of Defense (DOD), manages two sites using neutralization to destroy agent in weapons.

This testimony updates GAO's September 2003 report and October 2003 testimony. As requested, it focuses on the following issues: (1) changes in the status of schedule milestones and costs at the sites, (2) recent developments that impact the Chemical Weapons Convention (CWC) deadlines, (3) the challenges associated with managing the program, and (4) an update on the status of the Chemical Stockpile Emergency Preparedness Program (CSEPP).

What GAO Found

Since GAO testified in October 2003, the Chem-Demil Program continues to fall behind its schedule milestones, which were last extended in 2001. In the last 6 months, very little agent has been destroyed. While one site has closed, no new sites have started destroying agent (two were scheduled to start by March 2004). The delays stem from incidents during operations, environmental permitting issues, concerns about emergency preparedness, and unfunded requirements. If these delays persist, GAO continues to believe that program costs will rise substantially higher than the October 2003 estimate of more than $25 billion. These rising costs have led to the need to reallocate funds within the program's fiscal year 2005 budget.

Due to schedule delays, the United States will not meet the CWC April 2004 deadline to destroy 45 percent of the stockpile. Although it has received an extension for this task to December 2007, it is questionable if the program will meet this deadline. DOD has said it will ask for an extension of the final deadline to destroy 100 percent of the stockpile beyond 2007. Unless the program resolves the problems causing program delays, the United States risks not meeting this deadline, if extended.

One positive development in the program is that the leadership has been stabilized for over a year since the program was reorganized. However, several long-standing organizational and strategic planning issues remain. One problem is that the program's new management structure is complex, with multiple lines of authority within the Army and the separation of ACWA from the rest of the program. These complexities raise concerns about the roles and responsibilities of the different parts of the program. Program officials also told us that they are developing strategic and risk mitigation plans, as GAO recommended.

Since GAO testified in October, there continues to be improvement in the preparation of state and local communities to respond to chemical emergencies. As of January 2004, 6 of 10 states near the stockpiles report they are fully prepared. This is a marked improvement from the status we reported in 2001 when three states reported they were far from being prepared. However, CSEPP costs continue to rise because some states have expanded their preparedness requests beyond their approved budgets.

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To view the full product, including the scope and methodology, click on the link above. For more information, contact Raymond J Decker at (202) 512-6020 or deckerr@gao.gov

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to participate in this hearing today on the Department of Defense's (DOD) Chemical Demilitarization (Chem-Demil) Program. Since its inception in 1985, this program has been charged with destroying the nation's large chemical weapons stockpile, second only to Russia's in terms of its size. After years of planning and building new facilities, the program started destroying the stockpile in 1990. Since 1990, we have issued more than 25 reports on the Chem-Demil Program. Nearly half of the reviews have raised questions about the program's growing costs, its inability to meet its schedule milestones, and its management weaknesses.

As you requested, my statement updates GAO's testimony from October 2003 and focuses on the following issues: (1) changes in the status of schedule milestones and costs at the sites, (2) recent developments that impact the Chemical Weapons Convention (CWC) deadlines, (3) the challenges associated with managing the program, and (4) an update on the status of the Chemical Stockpile Emergency Preparedness Program (CSEPP).

As of March 2004, the Chem-Demil Program had destroyed an estimated 8,691 tons (27.6 percent) of the total 31,500 tons of the original agent stockpile stored at nine sites in the United States and the Pacific Ocean at Johnston Atoll. Since our testimony in October 2003, the program has destroyed very little additional agent (about 1.5 percent). Of the four sites that have begun agent destruction operations, Johnston Atoll has destroyed its entire stockpile and is closed; Tooele, Utah, has reduced its stockpile by about 47.1 percent; Anniston, Alabama, has destroyed 5.1 percent of its stockpile; and Aberdeen, Maryland, has destroyed 7.9 percent of its stockpile. Current schedule estimates show that the Army will not complete destruction of the entire stockpile until after the year 2012.

For this testimony, we conducted work that included discussions with officials from DOD, the Army, and FEMA. We also drew on the work we conducted for our September 2003 report[1] and October 2003 testimony.[2]

[1]U.S. General Accounting Office, *Chemical Weapons: Sustained Leadership, Along with Key Strategic Management Tools, Is Needed to Guide DOD's Destruction Program*, GAO-03-1031 (Washington, D.C.: Sept. 5, 2003).

We performed our work in March 2004 in accordance with generally accepted government auditing standards.

Summary

In summary, we found the following:

- Since we testified in October 2003, the Chem-Demil Program continues to fall behind its schedule milestones, which were extended in 2001. These schedule delays led to increased program costs and very little agent destruction over the last 6 months. We testified that four incineration sites and one bulk agent site would miss their scheduled milestones. However, since then, one of the incineration sites has closed and an additional bulk agent site has missed its scheduled milestone, resulting in five sites remaining behind approved destruction schedules. The remaining three sites—two Assembled Chemical Weapons Alternatives (ACWA) sites and one incineration site have not yet missed schedule milestones, but they too have experienced delays. The delays stem from ongoing incidents during operations, environmental permitting issues, concerns about emergency preparedness, and unfunded requirements. If these delays persist, we continue to believe that program costs will rise substantially higher than the October 2003 estimate of more than $25 billion. These rising costs have led to the need to reallocate funds within the program's fiscal year 2005 budget.

- Because of schedule delays, the United States will not meet CWC's April 2004 deadline to destroy 45 percent of the chemical stockpile. The United States asked the governing body of the convention for and received an extension for this deadline to December 2007. Although it has received an extension for this task, it is questionable if the program will meet this deadline. Moreover, DOD has said it will ask for an extension of the final deadline to destroy 100 percent of the stockpile beyond 2007. Unless the Chem-Demil Program is able to resolve the problems that have caused schedule delays to destroy the stockpile, the United States also risks not meeting CWC's deadline to destroy the entire stockpile, if extended to 2012.[3]

- We previously testified that despite efforts to improve the management and reorganize the Chem-Demil Program, the program has suffered from

[2]U.S. General Accounting Office, *Chemical Weapons: Better Management Tools Needed to Guide DOD's Stockpile Destruction Program*, GAO-04-221T (Washington, D.C.: Oct. 30, 2003).

[3] The CWC allows extensions of up to 5 years to the 2007 deadline.

several long-standing and unresolved management, organizational, and strategic planning issues. Recently, under the new organization, the leadership of the program has stabilized. However, the program's complex management structure, with multiple lines of authority within the Army and the separation of program components between the Army and DOD, raises concerns about the roles and responsibilities of the different parts of the program. For example, DOD manages two of the program's nine sites separately from the Army's management of the other sites. In addition, the absence of an overarching, comprehensive management strategy has resulted in a program without a clear road map to closely guide and integrate all of its activities and monitor its performance. Neither DOD nor the Army has adopted a comprehensive risk management approach that could help mitigate potential problems that affect program schedules, costs, and safety by anticipating problems and developing proactive plans. Program officials also told us that they are developing strategic and risk mitigation plans, as we have recommended.

- Since our October 2003 testimony, states and communities have continued to improve their emergency preparedness to respond to chemical incidents. Based on the states' self-assessments and FEMA's reviews, 6 of the 10 states near the eight storage sites are fully prepared and the remaining 4 are close to being fully prepared. In addition, in response to recommendations in our 2001 report,[4] FEMA and the Army have implemented a number of actions to improve technical assistance and guidance, training, and compliance measures to assess preparedness. However, despite these accomplishments, CSEPP costs continue to rise because some state and local communities have expanded their emergency preparedness requests beyond their approved budgets. The requests for fiscal years 2004 and 2005 exceeded approved budgets by a total of $88 million. In a few communities, these requests have grown as the sites have moved closer to the agent operations phase. These unfunded requirements have caused further delays in overall program operations because funds have to be diverted from other sites approved budgets to pay for these communities' requirements. To date, CSEPP has spent a total of $723 million in local communities.

[4] *Chemical Weapons: FEMA and Army Must Be Proactive in Preparing States for Emergencies*, GAO-01-850 (Washington, D.C.: Aug. 13, 2001).

Most Sites Will Miss Schedule Milestones Due to Program's Inability to Anticipate and Influence Issues

Since our October 2003 testimony, the Chem-Demil Program continues to struggle to meet its schedule milestones and remain within its cost estimates. These schedule delays led to increased program costs and very little agent has been destroyed over the last 6 months. We testified then that most incineration sites would miss their scheduled milestones established in 2001. At that time Anniston, Umatilla, and Pine Bluff had missed their 2001 milestones to begin agent destruction operations and Johnston Atoll had missed its milestone for shutting down the facility. However, since then, three of these sites have experienced further delays. Table 1 shows the delays at Umatilla, Pine Bluff, and Johnston Atoll incineration sites since October 2003. The delays stem from incidents during operations, environmental permitting issues, emergency preparedness, and unfunded requirements. If these delays persist, we continue to believe that program costs will rise substantially higher than the October 2003 estimate of more than $25 billion. These rising costs have led to the need to reallocate funds within the program's fiscal year 2005 budget.

Table 1: Delays in Meeting Schedule Milestones, by Incineration Site

Site	Next schedule milestone	October 2003 estimate to begin next milestone	Current estimates to begin next phase*	Difference between 2003 status and current estimate (no. of months)
Umatilla	Operations	Mar. 2004	July 2004	+4
Pine Bluff	Operations	Apr. 2004	July 2004	+3
Johnston Atoll	End of closure	Nov. 2003	Dec. 2003	+1

Sources: DOD and the U.S. Army

* Actual date that Johnston Atoll closed and program manager's official estimates for Pine Bluff and Umatilla to start operations.

As of March 2004, the two bulk-agent only sites, Aberdeen and Newport, have experienced delays and Aberdeen has missed its scheduled milestone for draining the agent from the ton containers. In 2002, DOD approved using an accelerated method that was expected to increase the rate of destruction at these two sites. The Army estimated that this process would reduce the scheduled end of operations at both sites by 5 years, from 2008 to 2003 at Aberdeen and from 2009 to 2004 at Newport. However, Aberdeen has encountered unanticipated problems with the processing of the mustard agent in the ton containers and has extended its planned completion date from October 2003 to December of 2004. The program has

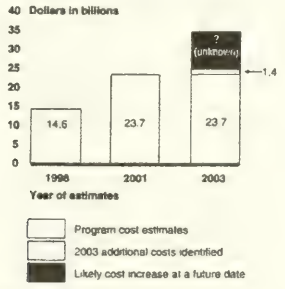
exceeded the 6-month period it estimated would be needed for accelerated destruction of the agent. Additionally, the site has only drained 152 of the 1,817-ton containers as of March 2004. Even if finished by December 2004, this time frame only covers the first stage of the operation to remove the mustard agent from the containers. An added problem, the hardening and congealing of residual agent in the ton containers, will require a second stage of operation to remove the residual agent. In addition, Newport has faced construction delays and community resistance to offsite treatment of waste byproducts. As a result of these delays, Newport extended its planned start date for agent operations twice: first from October 2003 to February 2004, and again to August 2004. However, the current plan to ship the waste to a treatment facility in New Jersey from Indiana has not been finalized and faces opposition from residents, workers, and environmental groups. DOD has not programmed funds to treat the waste on-site or to store it there until a disposal location has been finalized.

At the two ACWA sites, Pueblo, Colorado, and Blue Grass, Kentucky, DOD directed that they pursue accelerated destruction methods. According to program officials, the initial accelerated approaches proposed by the contractors exceeded DOD programmed funding and have to be reevaluated. Until the plans are approved, final schedule milestones cannot be set. This means both projects have been delayed while additional design work is completed.

These delays and schedule extensions[5] have contributed directly to program cost growth, according to program officials. As a result, DOD's total program cost estimate grew from $15 billion to $24 billion between 1998 and 2001. (See fig. 1.) Because of delays encountered since the 2001 revisions, the Army is now in the process of developing new milestones that will extend beyond those adopted in 2001. According to a DOD official, the program will use events that have occurred since 2001 in presenting new cost estimates to DOD for preparation of the fiscal year 2006 budget submission. Program officials told us that they estimate new costs had increased by $1.4 billion as of October 2003, and this estimate is certainly going to rise further, given the information we obtained on schedule delays from fiscal year 2005 budget documents and from program officials.

[5] Schedule extensions or slippages are caused primarily by actual destruction rates being lower than planned.

Figure 1: Comparison of 1998, 2001, and 2003 Cumulative Program Cost Estimates



Source: DOD.

As an example of the impact schedule delays have on the program, DOD's fiscal year 2005 budget request includes a realignment of $147 million from the ACWA program to the rest of the program. Additional requirements have been identified that will likely delay the schedule further if future realignments are necessary.

Schedule Delays Required CWC Extension of Deadlines

Although the United States met the first two chemical weapons treaty deadlines, the continuing delays in the schedule jeopardize its ability to meet the final two deadlines. (See table 2.) The program will not meet the April 2004 CWC deadline to destroy 45 percent of the stockpile. Although it has received an extension for this task to December 2007, it is questionable if the program will meet this deadline. Unless the Chem-Demil Program is able to resolve the problems that have caused schedule delays to destroy the stockpile, the United States will likely risk not meeting the deadline, if extended to 2012, to eliminate 100 percent of the stockpile.

Table 2: CWC Deadlines

Required percentage of agent destroyed	Deadlines for destruction	Date United States met deadline
1	April 29, 2000	September 1997
20	April 29, 2002	July 2001
45	April 29, 2004	Will not meet
100	April 29, 2007	Will not meet

Sources: CWC and U.S. Army

Long-standing Management and Strategic Planning Weaknesses Hamper Program Progress

Despite recent efforts to improve the management and change the organization of the Chem-Demil Program, the program continues to falter because several long-standing management, organizational, and strategic planning weaknesses remain unresolved. While the program has lacked sustained leadership in the recent past, this situation has stabilized. However, the program's complex structure, with its many lines of authority within the Army and between the Army and DOD, raises questions about the roles and responsibilities of its various offices. In addition, the program lacks strategic and risk management plans to guide and integrate its activities.

Program Management Structure Remains Complex

Although the program has experienced turbulence in key leadership positions in the recent past, the current leadership has been in place for more than a year, and these leaders have a substantial history of involvement with the program. The new leadership team is clarifying its roles, responsibilities, decision-making authority, and accountability.

However, despite the recent reorganization, this change has not streamlined the program's complex organization, as we documented in our 2003 report.[6] The establishment of the Chemical Materials Agency (CMA) in January 2003 has left the Director reporting to two different senior Army organizations. The reorganization has also divided the responsibility for various program phases between two offices within CMA. One organization, the Program Manager for the Elimination of Chemical Weapons, will manage the first three phases (design, construction, and systemization) for each site, and a newly created organization, the Director of Operations, will manage the final two phases (operations and

[6] GAO-03-1031.

closure). Moreover, the reorganization did not address the relationship between the Assembled Chemical Weapons Alternatives (ACWA) program and the Army's CMA since DOD manages ACWA separately from the Army, as congressionally directed.

Program Lacks Strategic and Risk Management Plans

In response to our recommendations in our September 2003 report, according to DOD officials, the Army is developing a strategic plan to address the goals, objectives, and performance measures of the program. DOD says it is now in the process of developing a risk management plan. In the past, because the program had used a crisis management approach, it was forced to react to, rather than control issues. We believe a risk management approach would allow DOD and the Army to proactively anticipate and address potential problems that could adversely affect program schedule, costs, and safety.

Emergency Preparedness Program Is Improving, but Costs Are Rising

FEMA and the Army continue to provide assistance to state and local communities to improve their emergency preparedness. Since our October 2003 testimony, states and communities have continued to improve their emergency preparedness to respond to chemical incidents. Additionally, FEMA has provided software and training to state and local communities to help them simplify development of CSEPP financial reporting documents. FEMA also has published a Recovery Workbook.[7] The workbook fills a void in state and local guidance for emergency responders to follow in the event of a chemical emergency. FEMA also expanded its capability assessment readiness tool to assist local communities in quantifying benchmark scores. In January 2004, FEMA reported to Congress that these achievements have aided CSEPP communities in reaching 95 percent of their benchmark compliance. Six of 10 states near the eight storage sites reported that they are fully prepared and the remaining 4 reported being close to fully prepared.

Despite these accomplishments, CSEPP costs continue to rise because, according to Army and FEMA officials, some state and local communities continue to identify additional emergency requirements that exceed DOD's

[7] U.S. General Accounting Office, *Chemical Weapons: FEMA and Army Must Be Proactive in Preparing States for Emergencies*, GAO-01-850 (Washington, D.C.: Aug. 13, 2001). Recovery plans refer to support activities that occur following a chemical event. The primary purpose is to protect the public health and safety while returning the community to normal conditions.

programmed funding. This situation occurs because of the open interpretation of "maximum protection" concept that governs CSEPP. These unfunded requests have two effects. First, they cause the benchmarks showing how prepared each community is to change from fully compliant to not compliant from year to year. Second, they cause funds to be transferred from destruction activities to CSEPP and result in further delays in the destruction schedule. Army and FEMA officials explain that the states often identify and expand their requirements, especially as destruction facilities move closer to the start of the operations phase. For example, the states of Colorado, Alabama, and Oregon have requested additional funds for infrastructure support, including roads and bridges that exceed their CSEPP budgets. These requests follow a pattern that occurred at Anniston in 2001 when it received $40.5 million for additional CSEPP items. Currently, the communities around the Umatilla facility are demanding that substantial additional funding be provided as the onset of operations comes closer. Programwide, new requirements continue to exceed approved CSEPP funding levels. FEMA has little control over the additional funding requests made by the states. As of October 2003, FEMA had identified total $88 million in unfunded CSEPP requirements for fiscal years 2004 and 2005. As of fiscal year 2004, the total cost for CSEPP has risen to $723.1 million. Funding for individual states ranges from $9.7 million to $259.6 million for the period of 1989 to 2004. (See table 4.)

Table 4: CSEPP Funding by State, Fiscal Years 1989-2004

State	Fiscal years 1989-2004	Percent of total spending
Alabama	$259,612,223	35.9
Arkansas	80,311,665	11.1
Colorado	30,233,930	4.2
Illinois	9,724,039	1.3
Indiana	46,201,152	6.4
Kentucky	60,055,596	8.3
Maryland	30,472,755	4.2
Oregon	93,484,394	12.9
Utah	74,596,336	10.3
Washington	38,388,929	5.3
Total	**$723,071,019**	**100.0**

Source: FEMA data. The Army and FEMA have recently recognized the Confederated Tribes of the Umatilla Indian Reservation as a separate funding entity. The confederated tribes have received $2.5 million to date.

Mr. Chairman, this concludes my statement. I would be pleased to respond to any questions that you or Members of the Subcommittee may have.

Contacts and Acknowledgments

For future questions regarding this testimony, please contact me at (202) 512-6020. Individuals making key contributions to this testimony include Donald Snyder, Rodell Anderson, Bonita Oden, John Buehler, Nancy Benco, Rick Yeh, Susan Mason, and Mike Zola.

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RECORD VERSION

STATEMENT OF THE HONORABLE DALE KLEIN
ASSISTANT TO THE SECRETARY OF DEFENSE FOR
NUCLEAR AND CHEMICAL AND BIOLOGICAL DEFENSE PROGRAMS

BEFORE THE
COMMITTEE ON ARMED SERVICES

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS
AND CAPABILITIES

UNITED STATES HOUSE OF REPRESENTATIVES
SECOND SESSION 108TH CONGRESS

THE U.S. CHEMICAL DEMILITARIZATION PROGRAM

APRIL 1, 2004

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Mr. Chairman and distinguished committee members, thank you for the opportunity to appear before you today to discuss the Department of Defense Chemical Demilitarization Program.

I am Dr. Dale Klein, the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs. In this capacity, I am the principal advisor to the Secretary and Deputy Secretary of Defense and the Under Secretary of Defense for Acquisition, Technology and Logistics, for all matters concerning the formulation of policy and plans for nuclear, chemical, and biological defense programs and directly responsible for matters associated with nuclear weapons safety and security and chemical weapons demilitarization.

The mission of the DoD Chemical Demilitarization Program is to safely destroy all U.S. chemical warfare-related materiel while ensuring maximum protection of the public, personnel involved in the destruction effort, and the environment. We have learned since 1986, when Congress mandated the destruction of our chemical weapons stockpile, that there are many unanticipated challenges associated with a national program of this magnitude. Indeed, the Chemical Demilitarization Program is now entering an important milestone, where six separate sites each operating 24 hours a day, 7 days a week, in four separate time zones, will be simultaneously destroying different chemical agents in various configurations, using different technologies, and employing different contractors.

Today I would like to provide a brief status update on the DoD Chemical Demilitarization Program and to reaffirm the importance of fully funding the President's Fiscal Year 2005 Chemical Demilitarization Program Budget request, which has been submitted in compliance with Public Law 107-314, Section 141a.

Program Status

Currently, three chemical weapons destruction sites are operational. These include the incinerators at Tooele, Utah and Anniston, Alabama, and neutralization technology at Aberdeen, Maryland. The Department expects to begin operations at three additional sites during 2004, to include incinerators at Umatilla, Oregon and Pine Bluff, Arkansas, and the neutralization technology site at Newport, Indiana. The remaining neutralization sites at Pueblo, Colorado and Blue Grass, Kentucky, are early in the design and environmental permitting stages of

development. While this is a summary-level synopsis of the overall status, I can provide you a more detailed account of the status on a site-by-site basis if desired.

FY 2005 Budget Summary

The funds requested for the Chemical Demilitarization Program in the Fiscal Year 2005 President's Budget are necessary for the Department of Defense to destroy the U.S. national chemical weapons stockpile as mandated by Public Law 99-145 and the Chemical Weapons Convention. These funds will allow the Department to continue chemical weapons destruction operations at Tooele, Utah; Anniston, Alabama; Umatilla, Oregon; Newport, Indiana; and Pine Bluff, Arkansas. The request also funds ton container cleanout operations at Aberdeen, Maryland; maintains Chemical Stockpile Emergency Preparedness Program activities at all remaining chemical weapons stockpile sites; and continues the design, environmental permitting and military construction projects at the Pueblo, Colorado and Blue Grass, Kentucky sites.

Eliminating targets of opportunity for terrorists such as the continued storage of our chemical weapons stockpile is essential. It is also essential to ensuring the U.S. meets its Chemical Weapons Convention obligations. Maintaining operations at all current destruction sites allow us to achieve the Chemical Weapons Convention 45% extended deadline of December 31, 2007.

Assembled Chemical Weapons Alternatives Program (ACWA)

While six of the eight chemical weapons destruction sites are expected to be operational in Fiscal Year 2005, the Department has only recently begun the acquisition process for the two remaining sites at Pueblo, Colorado and Blue Grass, Kentucky.

At the beginning stages of any acquisition program, the Department is required to conduct analyses to ensure that the program conforms to reasonable cost and schedule guidelines. These analyses help fulfill our obligation of responsible resource management to the U.S. taxpayer. Late last year, the Department reviewed the emerging design concept for Pueblo, and contrary to our expectations, it was different than originally approved, with unanticipated additional funding requirements. The Department is therefore conducting evaluations of design variants for Pueblo as well as for Blue Grass.

The Department has been asked why the President's Fiscal Year 2005 chemical demilitarization budget request for $1.5 billion reduces research and development funding for the Pueblo Chemical Agent Pilot Plant by $147 million. In exercising our due diligence, we recognized that the ACWA Program would have difficulties obligating and disbursing the funding previously identified for the Pueblo project, given the expectation of carryover funds from Fiscal Year 2004. Pending the results of our design concept analysis, we moved $147 million from the Pueblo research and development funding line to balance the requirements and resources identified in other areas of the Chemical Demilitarization Program. These include critical Chemical Stockpile Emergency Preparedness Program requirements and an improved chemical agent monitoring capability. These are areas that have been repeatedly scrutinized by members of Congress, state and local governments, and special interest groups. Based on information provided by the Army, the Department agrees that increasing funding in these areas will address these important issues.

We also agree with citizens and elected officials alike that it is important to accelerate destruction efforts at Pueblo and Blue Grass. We also agree that any facility we design, construct, and operate must be safe, environmentally protective, and cost effective as required by Congress which was the basis of our technology selections at both sites. Our efforts to exercise fiscal responsibility on this program have never been intended or expected to delay the actual destruction of chemical agent at Pueblo or Blue Grass. Our intent is to confirm that the technologies chosen for these two sites are cost effective, technically viable, and able to ensure the safety of the surrounding communities, workers, and the environment.

As the General Accounting Office reported last September, management of the DoD Chemical Demilitarization Program is unnecessarily complex and should be streamlined. While the Army has done a great job of streamlining the program by the creation of the Chemical Materials Agency, further efficiencies are necessary. Consolidation of all chemical weapons elimination efforts into a single organization will create economies of scale and will allow us to unify the program during a time of much activity. The ACWA Program has been successful in identifying the technology to be used at the Pueblo, Colorado and Blue Grass, Kentucky sites. Now we need to move through the implementation phase. Placing the ACWA program under the Army with continued OSD oversight will enable the Army to better manage the total Chemical Demilitarization Program.

Final Remarks

In conclusion, I want to emphasize the Department's commitment to destroying our nation's chemical weapons stockpile safely and expeditiously. We have many distinct challenges; however, we are prepared to work every issue to bolster our overall efforts in this prominent national security program, and to meet our obligations under the Chemical Weapons Convention. I welcome your comments on our program's progress, and look forward to working with you to advance our common goal of the safe and complete destruction of our national chemical weapons stockpile.

RECORD VERSION

STATEMENT BY THE UNITED STATES ARMY:

THE HONORABLE CLAUDE M. BOLTON, JR

ASSISTANT SECRETARY OF THE ARMY
ACQUISITION, LOGISTICS, AND TECHNOLOGY

BEFORE THE

COMMITTEE ON ARMED SERVICES

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS

AND CAPABILITIES

HOUSE OF REPRESENTATIVES

SECOND SESSION 108TH CONGRESS

CHEMICAL DEMILITARIZATION

01 APRIL 2004

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
COMMITTEE ON ARMED SERVICES

STATEMENT BY

HONORABLE CLAUDE M. BOLTON, JR.

ASSISTANT SECRETARY OF THE ARMY

ACQUISITION, LOGISTICS AND TECHNOLOGY

ON THE UNITED STATES CHEMICAL DEMILITARIZATION PROGRAM

Mr. Chairman and members of the Committee, I am grateful to again have the opportunity to address this committee. As the Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Acquisition Executive, I am responsible to the Acting Secretary of the Army and to the Defense Acquisition Executive for the execution of the Chemical Demilitarization Program. I consider it an honor to serve in this capacity and to lead the program at this critical juncture when operations will soon be ongoing at all of the destruction facilities under my purview.

Be assured that I am fully committed to successful implementation of the Chemical Demilitarization Program. I am also fully committed to ensuring that the public, the Congress, the Acting Secretary of the Army, and other senior Department of Defense leadership have timely, accurate information about the Chemical Demilitarization Program. I am especially pleased to report that we will be bringing an additional three destruction sites on line this year.

At this critical juncture in our efforts to destroy the chemical agent stockpile, fully funding the President's budget request is imperative. The Army has carefully evaluated our requirements and we believe that we can meet them at the President's proposed funding level and still ensure that the Program is executed with the highest fiscal and

ethical standards. I am currently reviewing the results of a number of internal studies that identified some shortcomings and proposed improvements in the way we do business. Based on my review, I will direct the Chemical Materials Agency to take appropriate action to implement improvements in the overall program execution.

The mission of the Chemical Demilitarization Program is to destroy all U.S. chemical warfare materiel while ensuring maximum protection to the public, program personnel, and the environment. The safety of our employees, communities, and environment is our highest priority. We have made tremendous strides in community protection in the past few years, ensuring that the local communities near these facilities are fully prepared. I would like to reiterate that our paramount objective is to reduce the risk to the communities surrounding chemical storage sites, in concert with our partners at the Department of Homeland Security's Federal Emergency Management Agency (DHS-FEMA), as we safely eliminate the United States stockpile of lethal chemical agents and munitions. We have recently updated an Army-FEMA Memorandum of Understanding that reinforces our partnership and continues our promise of providing maximum protection to the general public, workers, and the environment. Each day that we operate a chemical destruction facility, we reduce the threat posed to the public by continued storage. The danger of continued storage of these agents and munitions drives the Program to continue to strive to bring our facilities on line and begin destruction, which will enhance the safety of all Americans.

Since the U.S. Chemical Demilitarization Program began, we have safely destroyed more than 27 percent of the nation's original stockpile of 31,000 tons of lethal chemical agents. We are proud of the progress to date, and we anticipate similar

progress as we bring more facilities into operation. Today, state-of-the-art destruction facilities are destroying the nation's stockpile of chemical agents and munitions at Tooele, Utah, and Anniston, Alabama, and a neutralization facility is operating at Aberdeen, Maryland. Construction at our incineration facilities at Umatilla, Oregon, and Pine Bluff, Arkansas, and at our neutralization facility in Newport, Indiana is complete, and these sites are undergoing systemization. We expect to have these three sites operating by the end of this year. As we begin destruction operations across the United States, we will continue to rely heavily on the professionalism of our talented workforce to perform their duties safely and expeditiously. As I previously testified, the Pine Bluff, Arkansas facility was completed ahead of schedule and under budget; we have truly learned from our past experiences to streamline our approaches without compromising safety, efficiency, or environmental protection. I am proud of the government, civilian and contractor professionals performing this most important mission.

Since I last testified before this Committee, we have made several major achievements. The Army recently completed development of a small hand-held reactor system known as SCANS (Single Chemical Agent Neutralziation Systems), which can destroy individual bottles or vials of chemical agent cheaply and quickly. These systems have been tested, produced and provided in quantity to chemical response experts at the U.S. Army Technical Escort Unit for use in WWII training set recoveries or other emergencies. In December 2003, we surpassed the 80 percent Former Production Facility destruction milestone in December 2004, 16 months ahead of the Treaty requirements. Over the past five months, the Army has safely destroyed an additional 450 tons of chemical agent and 21,905 munitions. And the Anniston Team

recently completed destruction of more than 21,300 GB rockets stored there. This represents 50 percent of the GB M-55 stockpile at Anniston. This truly significant milestone includes more than 5.2 million man-hours worked without a lost time accident. Through these destruction efforts, Anniston employees reduced by 12 percent the risk posed to the local community by continued storage.

The United States remains committed to meeting its obligations under the Chemical Weapons Convention and will continue to explore any available means to accelerate the destruction of the nation's stockpile safely and effectively.

In closing, Mr. Chairman, I ask for your continued support of this critical national program so that we may continue to demonstrate our commitment to the communities surrounding our storage sites, to the nation, and to our international partners. Thank you for the opportunity to present my statement to you and to members of your Committee.

STATEMENT FOR THE RECORD
CRAIG CONKLIN
CHIEF
NUCLEAR AND CHEMICAL HAZARDS BRANCH
(FEMA)
DEPARTMENT OF HOMELAND SECURITY
BEFORE THE HOUSE ARMED SERVICES SUBCOMMITTEE ON
TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
APRIL 1, 2004

Mr. Chairman and members of the Subcommittee, I am Craig Conklin, Chief of FEMA's Nuclear and Chemical Hazards Branch. I am pleased to provide this statement to the Subcommittee wherein I will update FEMA's activities in support of the Chemical Stockpile Emergency Preparedness Program (CSEPP) since my last testimony before this Subcommittee, on October 30, 2003.

Once again, we welcome the opportunity to share with the committee CSEPP's continued successes and how this important program is benefiting our nations' emergency preparedness and homeland security efforts. Following my brief remarks, I will be happy to answer your questions.

My statement will cover: FEMA's roles and responsibilities in CSEPP; the structure and operation of the program; the current status and challenges presented by this complex program; and the efforts to share the lessons learned from this program within the Department of Homeland Security.

FEMA'S MISSION

FEMA's mission continues to be the reduction of the loss of life and of damage to property and to protect our residents from all hazards, natural and man-made. We accomplish this mission by providing the Nation with comprehensive, risk-based emergency management programs, including mitigation, preparedness, response, and recovery. Our integration into the new Department of Homeland Security has increased our opportunities to perform this mission.

We continue to work closely with many other Federal Departments and agencies, and with States, Tribal Nations, local governments, volunteer organizations, and private industry.

CHEMICAL STOCKPILE EMERGENCY PREPAREDNESS PROGRAM (CSEPP)

In my previous testimony, I detailed the statutory foundation of the Program, Public Law (P.L.) 99-145, wherein Congress directed the Department of Defense (DOD) to dispose of its lethal unitary (pre-mixed) chemical agents and munitions while providing "maximum protection for the environment, the general public and the personnel involved

in the destruction of lethal chemical agents and munitions . . ." Both the U.S. Army and FEMA continue to work towards Congress' goal of maximum protection for the environment, general public, and personnel. FEMA and the Army jointly formed CSEPP to ensure Congress' intent was followed.

Since 1988, FEMA and the Army have cooperated in enhancing public safety and working towards maximum protection at the Army's chemical stockpile sites. We also have signed three Memoranda of Understanding and one reaffirmation to show our cooperation and resolve in protecting the public.

CSEPP's mission continues to be protecting residents from exposure to chemical agents and is, therefore, directly beneficial to the work of DHS and our Nation's anti-terrorism efforts. Many of CSEPP's chemical hazard and public safety research, training, and public outreach efforts can be used nationwide.

FEMA'S CSEPP RESPONSIBILITIES

CSEPP is an outstanding example of partnership among the Army, FEMA, States, Tribal Nations, and local jurisdictions. The Federal management structure is uniquely designed to capitalize on each Federal partner's expertise and administrative infrastructure to develop and enhance the emergency preparedness capabilities of the affected Army installations and the participating State and local jurisdictions.

Within CSEPP, FEMA's responsibility and accountability entail all aspects of off-post emergency preparedness, including:

- Administering off-post CSEPP funds;
- Supporting the States in developing response plans;
- Preparing, developing, delivering, and evaluating training;
- Providing technical assistance; and
- Developing programs for evaluating off-site readiness capability.

PROGRAM STRUCTURE

Ten States, 41 counties, and one Tribal Nation surrounding the eight U.S. Army stockpile sites participate in CSEPP. The eight States hosting installations with chemical stockpiles are: Alabama, Arkansas, Colorado, Indiana, Kentucky, Maryland, Oregon, and Utah. Two additional States, Illinois and Washington, also participate in the program because of their borders' proximity to the stockpiles in Indiana and Oregon, respectively. The Confederated Tribes of the Umatilla Reservation in Oregon also actively participate in the program.

Thirteen (13) counties are in Immediate Response Zones, the areas closest to where the chemical agents are stored and generally within approximately a ten-mile radius. Twenty-five counties are in Protective Action Zones, beginning at the outer edge of the Immediate Response Zones and extending to a distance of between six and 31 miles. The

remaining three counties are designated as host counties, which lie outside the Immediate Response Zones and Protective Action Zones.

Like FEMA's other emergency preparedness programs, CSEPP is administered through the States. Funds are distributed to the States under Cooperative Agreements, based upon a negotiated work plan between the States and FEMA Regional Offices. Under the agreements, each State identifies needs, develops proposed projects to meet those needs, requests funds, and disburses those funds at the State level and to local governments.

Budgeting for the CSEPP is done according to the Department of Defense's Planning Programming and Budgeting System (PPBS). The budget for off-post emergency preparedness is based in large part on Life Cycle Cost Estimates (LCCE) that are prepared by the States in conjunction with FEMA, and updated regularly.

At the Federal level, FEMA and Army Headquarters are responsible for CSEPP policy and program development, while the FEMA regions and the Army's Chemical Materials Agency manage day-to-day operations. Site-specific issues are dealt with through site-specific Integrated Product Teams. These teams (required to be established by Section 1076 of P.L. 104-201, the Department of Defense Authorization Act for FY1997) serve as the primary local forum for identifying site-specific operational issues, proposing solutions to those issues to the appropriate level decision makers, and implementing programmatic and operational decisions.

CSEPP MANAGEMENT SYSTEM

CSEPP focuses on providing the personnel, equipment, and training necessary to establish a response infrastructure that enables emergency managers to quickly alert the public, manage the response, and communicate with the public, the media, and emergency responders. Equally important is public awareness of what to do in the event of an incident. CSEPP programmatic benchmarks define a level of response functionality necessary to protect the public (benchmark compliance) and provide resources as needed to eliminate preparedness weaknesses.

Fiduciary requirements dictate that FEMA carefully evaluate requests from the States and communities to achieve "maximum protection" capability within the limits of funds provided. As such, our goal is to deliver maximum available resources to the local communities in relation to the level of risk faced by the community.

As of March 31, 2004, approximately $645 million had been allocated to the States under the annual Cooperative Agreements. In addition, $80.2 million more has been applied to FEMA-managed contracts that support the States. The allocation of resources is tracked according to the jurisdiction that spends the funds rather than the jurisdiction that benefits from the service. Therefore, funds spent at the State and county levels do not reflect the true picture of the benefits the counties have received through the program.

For FY2005, FEMA has programmed $96.3 million into the budget to cover off-post CSEPP-preparedness.

CSEPP BENCHMARKS AND PREPAREDNESS COMPONENTS

FEMA and the Army continue to manage CSEPP through the 12 benchmarks. These benchmarks date back to 1993 and capture the outcome-oriented methods necessary for public safety. The Program continues to develop metrics and strategic plans to ensure the environment, public, and personnel are protected.

The benchmarks are the primary system by which we manage performance in CSEPP. The eight CSEPP communities evaluate and update their benchmark status quarterly at IPT meetings. The FEMA Regional CSEPP personnel then report benchmark status at quarterly In Progress Reviews (IPRs) held at FEMA headquarters. CSEPP has made significant strides in improving benchmark compliance during 2003. In fact, during that year, compliance increased from 93.3 percent in 2002 to 95.4 percent.

CONTINUED SUCCESSES

The partnership between the Army and FEMA is very strong and getting stronger. Our two organizations have worked well together resulting in numerous accomplishments. Building on those successes, we are working on other initiatives that are designed to enhance public protection, to streamline budgeting and administrative tasks, and to continue the use of Integrated Product Teams (IPTs). IPTs are working groups comprised of stakeholders from all levels of government to resolve issues and implement the program.

Since my last testimony, the program has achieved many notable successes. On March 23, 2004, both FEMA and the Army renewed their outstanding partnership as signatories to a new Memorandum of Understanding (MOU) between the parties. The new MOU captures organizational changes and reaffirms our commitment to cooperation and public safety.

We have developed Cooperative Agreement (CA) Tools 3.0, an automated CSEPP financial management software for budget application, review, approval, award, reporting, and closeout of CSEPP grants and cooperative agreements. Thus far, we have installed the software in seven of our ten CSEPP States and it has received rave reviews. One State's financial manager deemed the CA Tools software a "godsend."

Other Federal agencies and organizations have adopted CSEPP's outcome-oriented exercise process for national implementation. Our emergency exercises are jointly conducted with the full cooperation and involvement of the Army installations and the off-post communities. Army and off-post personnel routinely train together, participate in integrated process teams, and meet to share ideas at meetings and workshops. This relationship has solidified communications between the on-post and off-post communities that is critical to the effective implementation of an emergency plan.

Our comprehensive Reentry Recovery Workbook now has a computer-based interactive planning and training tool for recovery planning. This tool will help our communities develop first-rate recovery plans. Our Medical Quality Improvement Teams continue to rely on the expertise of our state and local partners. Observers have noted that our CSEPP medical preparedness exceeds that of most communities and is an outstanding example nationwide.

Since last October, we have updated and refreshed our outstanding CSEPP Portal at www.csepportal.net. We have made the site more user-friendly and incorporated a "My CSEPP" feature so that users may tailor the site to their needs. Portal use is growing exponentially and is a highly-effective mechanism to share information and best practices.

Our Protective Actions IPT continues to develop a Workbook to aid State and local governments in the development of protective action decision strategies. We make concentrated efforts to share the results of our research and science with others who can benefit. For example, much that CSEPP has developed can be of value in protecting against toxic industrial chemical hazards, and we have worked closely with the President's Chemical End-2-End Working Group and the National Institute for Chemical Studies to ensure that CSEPP best practices are exported to other hazardous materials preparedness programs.

We are extremely proud of the public safety efforts FEMA and its partners have accomplished in Alabama. The U.S. Army Corps of Engineers performed the Herculean task of completing collective protection construction projects at 20 schools by October 1, 2003. This task allowed demilitarization operations to begin. To date, more than 50 percent of the sarin (GB) rockets have been destroyed with a concomitant reduction in public risk. The Alabama IPT successfully resolved extant protection issues and, thus, ultimately increased the safety of the community by destroying the hazard. Also, at the request of the Alabama community, FEMA has developed an automated protective action decision tool that takes data from the Army's CSEPP hazard analysis model and rapidly develops an optimized strategy to minimize exposure of the population at risk.

CSEPP has continued its history of developing valuable training and public education materials. In fact, on March 26, 2004, our Chemical Preparedness Section Chief, Dan Civis, accepted an award from the Society for Technical Communication for our *Residential Shelter-in-Place* video. This video is in great demand from many federal, State, and local agencies and is used to assist them in WMD training and public awareness. A companion video, *Shelter-In-Place for Businesses and Industry*, has also been completed and is ready for release. Since my testimony last October, over 100,000 additional CSEPP training courses, job aids, technical reports and public education tools were downloaded from the CSEPP training web site and are regularly used for training first responders to deal with weapons of mass destruction and toxic industrial chemicals. Total training downloads now exceed 326,000.

We are in continuing dialogue with our State, County, and Tribal Nation partners to resolve outstanding issues and to sustain the high level of preparedness that exists within our program.

CONCLUSION

CSEPP continues to accomplish its mission of protecting the environment, general public, and workers at the eight chemical weapons stockpile sites. Nearly all-major CSEPP systems are in place and operational. Improvements to protections in all communities will continue. We continue to strive to increase our preparedness and readiness with our goal of 100 percent benchmark attainment reachable in the very near future. Our efforts to improve public safety, however, will not cease until all the chemical weapons stockpiles are destroyed.

Once again, FEMA is committed to ensuring the successful implementation of CSEPP and protecting the health and safety of our citizens. "Maximum protection" is the most stringent requirement of any emergency preparedness program directive, but we are confident that the Federal, State and local emergency management community is up to the challenge.

Since the Program's inception, CSEPP communities have made quantum leaps in emergency preparedness. Today, our communities are included amongst those best prepared in the nation to respond to a WMD incident. Again, we thank our CSEPP communities for their commitment and dedication to this important program and renew our pledge to work with them until the risk of a chemical stockpile incident no longer exists. Just as we, FEMA, and the Army, reaffirmed our commitment to each other and to further public safety through our signing of the March 23, 2004, MOU, FEMA recommits itself to ensuring the public's safety at the chemical stockpiles. Most importantly, just as Alabama has reduced its risk by 12 percent in the last few months since my last testimony, the other communities can see the same reductions once they begin destruction of the chemical weapons stored in their communities. Finally, we all look forward to that day when the last chemical weapon and warfare agent is destroyed.

Testimony
Before the Subcommittee on Terrorism, Unconventional Threats, and Capabilities
Committee on Armed Services
United States House of Representatives

CDC's Public Health Role in the Chemical Demilitarization Program

Statement of
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National Center for Environmental Health
Centers for Disease Control and Prevention,
U.S. Department of Health and Human Services

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For Release on Delivery
Expected at 10:00 AM
on Thursday, April 1, 2004

Mr. Chairman and members of the Subcommittee, I am Patrick Meehan, Deputy Director for Program at the National Center for Environmental Health, one of the centers within the Centers for Disease Control and Prevention (CDC). I would like to thank the Subcommittee for inviting me here today to discuss CDC's legislatively mandated public health oversight role in the chemical demilitarization program of the Department of Defense. I would also like to thank the subcommittee for your interest in ensuring the safe destruction and disposal of our nation's chemical weapons stockpile.

My testimony will focus on two general topics: (1) CDC's mandated role in overseeing the plans of the Department of Defense for destroying the nation's stockpile of chemical weapons and (2) CDC's involvement at the Newport, Indiana and the Aberdeen, Maryland disposal facilities.

CDC's Overall Chemical Demilitarization Mission

The U.S. Department of Health and Human Services is mandated by law to oversee the plans of the Department of Defense for destroying the nation's stockpile of chemical weapons, including any plans to transport or dispose of lethal chemical or biological warfare agents. This mandate was delegated to CDC from the Office of the Surgeon General in 1981. Our mission in carrying out the mandate is to protect the public's health and safety by reviewing plans, providing advice, and making recommendations on the safe disposal and transportation of both stockpile and non-stockpile chemical

warfare agents. The Secretary of Defense is required to implement CDC's recommendations for precautionary measures to protect the public health and safety. In carrying out these activities, CDC's primary focus has been on preventing potential problems that could adversely affect the health of disposal site workers and the surrounding communities.

CDC begins its oversight function for the disposal of agent by reviewing the Army's proposed destruction technology. CDC then examines facility design provisions and operating procedures that are to protect the workforce and surrounding communities. During operations at chemical weapons destruction facilities, CDC conducts periodic on-site reviews for the purpose of ensuring safety. Because air monitoring is a critical element in detecting any possible agent release incidents, CDC regularly examines air monitoring procedures and strategies, including the number and placement of air monitors as well as the quality of the data from these systems.

In addition, CDC, in conjunction with state and local environment and health authorities where chemical weapons stockpiles are located, evaluates other functions at a chemical destruction site, including process safety, industrial hygiene, and medical readiness. Together, such activities contribute significantly to preventing exposure to chemical agents. Finally, to ensure that medical and emergency personnel near a facility are prepared to respond to an incident involving release of a chemical agent, CDC makes itself available to provide consultation services to those personnel and the

Community Stockpile Emergency Preparedness Program (CSEPP).

In undertaking our oversight responsibilities at destruction sites, CDC is currently addressing several key issues. First CDC is working with the Army to implement revised airborne exposure limits of chemical warfare agents for workers and the general population. In response to a request from the Army, CDC recently updated these limits to ensure that workers and the public are protected from exposure to a harmful concentration of agent. Second, CDC must strive to ensure worker and public safety are adequately addressed during the start-up of disposal facilities. Third, CDC is in discussions with the Army to improve air monitoring methods and technology in such a way as to reduce false positive instrument responses, improve response times, and meet the newly recommended airborne exposure limits. Finally, we are faced with the task of examining unique problems impacting human health associated with new non-incineration technologies such as those at Newport and Aberdeen.

CDC's Activities at the Newport and the Aberdeen Chemical Agent Disposal Facilities

Both the Aberdeen and the Newport facilities were constructed rapidly following the events of September 11, 2001. The rapid construction occurred within the goal of reducing the threat of terrorism in connection with the nation's chemical weapons stockpile. We believe that some of the difficulties at these facilities arose because there

is less experience with the new neutralization technologies compared to the incineration technology used at other sites. An added challenge is that both design and construction occurred concurrently at these facilities.

During 2004, CDC's chemical demilitarization program has focused much of its activities on the Newport Chemical Agent Disposal Facility in Indiana because the planned process is a relatively new technology, and operations are scheduled to begin soon. The proposed process at Newport, Indiana will use chemical neutralization of the chemical agent VX, followed by secondary transportation to and treatment and disposal of the resulting wastewater at an off-site facility. CDC has devoted significant resources to evaluating the first phase, the neutralization of VX at the Newport site. The two basic concerns with this first phase are (1) ensuring that the waste hydrolysate, the waste byproduct of neutralized VX, does not contain any detectable level of VX and (2) ensuring that the facility can operate safety.

Last year, CDC conducted an evaluation of the Newport site's hazard analysis process. The review provided recommendations in several key areas, including (1) the extent of independence of the contractor's review team, (2) whether the hazard review methodology is appropriate, (3) whether the documentation for the review is complete, (4) the need for a human error/human factors study, and (5) the need to manage and evaluate changes to the design and processes. The Newport staff and contractor are currently addressing our recommendations. In addition to the CDC review, the Newport

project team has contracted with the Mary Kay O'Connor Process Safety Institute of Texas A & M University to conduct an independent risk analysis of the process. CDC will review the results of the analysis before the facility begins processing agent.

In conformity with public laws delineating our involvement in chemical demilitarization, CDC's role generally ends when the waste no longer contains any detectable level of chemical weapons agent, at which time the responsibility for the waste falls under existing transportation and environmental disposal regulations. Nonetheless, CDC is available to provide assistance to the Army or to EPA within our areas of expertise.

The Army's proposal for secondary treatment of Newport caustic hydrolysate at a Dupont facility in New Jersey has generated significant public controversy. CDC has reviewed and provided comment on one draft Dupont report related to health hazards associated with the hydrolysate—a document titled *Health Hazard Considerations for Safe Management of Newport Caustic Hydrolysate (NCH)*. CDC was not asked to review the other three Dupont documents. In short, CDC has *not* conducted a comprehensive review or an analysis of the proposed project to transport and treat the secondary waste generated by the VX neutralization.

The Aberdeen Chemical Agent Disposal Facility is another chemical neutralization facility at which CDC has been active in an oversight role during the start-up of operations. Before the Aberdeen facility began processing agent, CDC evaluated the

air monitoring systems and laboratory capabilities, attended integrated operation demonstrations, and enlisted the support of occupational health experts at CDC's National Institute for Occupational Safety and Health to assist in an examination of process safety. CDC is aware of the operational problems at the Aberdeen site and has been briefed by the Army on the status of the facility. CDC is planning to revisit the facility in May of the current year to review changes the Army has made to the operation.

Although I have pointed out a number of challenges currently associated with our oversight responsibilities, I must also emphasize that CDC has had a long and successful working relationship with the Army's chemical demilitarization activity. The successful completion of the agent destruction mission at Johnson Atoll and the safe elimination of the GB stockpile at Tooele, are representative of the true accomplishments in reducing the threat of chemical weapons. CDC looks forward to contributing to continued safe progress in this vital program.

Mr. Chairman and members of the subcommittee, this concludes my testimony. I would be happy to answer any questions and respond to any requests for additional information.

QUESTIONS AND ANSWERS SUBMITTED FOR THE RECORD

APRIL 1, 2004

QUESTIONS SUBMITTED BY MR. SAXTON

Mr. SAXTON. In looking at the budget execution for FY 2003 and comparing the budget requests for FY 2004 and FY 2005, it appears that despite the increased cost resulting from particular decisions such as the accelerating the destruction of the stockpile at Aberdeen and Newport and the increased costs of the Chemical Stockpile Emergency Preparedness Program, a decision has been made to limit the FY 2005 funding level to the estimated FY 2005 budget projection included in the FY 2004 budget request. How are increased program requirements accommodated in the chemical weapons disposal program in any given year? From year to year?

Dr. KLEIN. When increased program requirements are identified in a given year, the Army or the Assembled Chemical Weapons Alternatives Program submits a request to the Department that has been assessed. The Under Secretary of Defense (Acquisition, Technology, and Logistics), with advice of the Defense Acquisition Board review, and if available funding can be identified, may approve the request. The Under Secretary then renders an Acquisition Decision Memorandum that increases the approved program requirement.

From year to year, program requirements are addressed during the program/budget review. The Under Secretary of Defense (Acquisition, Technology, and Logistics), with the advice of the Defense Acquisition Board, determines the path forward for the Chemical Demilitarization Program, which drives resource requirements. These resource requirements provide the basis for the Department's funding request with the President's annual budget submission.

Mr. SAXTON. What near term means could be taken to accelerate the program, increase the probability of meeting the United States' commitments under the Chemical Weapons Convention for destruction of the stockpile, and/or reduce overall life-cycle costs? What would be the near-term costs and overall reduction in the life-cycle cost of such initiatives?

Dr. KLEIN. Potential alternatives may include commercial treatment and disposal of secondary waste generated during the destruction process; destroying the bulk containers of chemical agent first followed all remaining chemical weapons with the same chemical agent-fill; consolidation of chemical weapons; reconfiguration of chemical weapons; and consolidation of the U.S. Army Chemical Materials Agency and the Assembled Chemical Weapons Alternatives Program to eliminate duplicate resources and efforts, and to ensure lessons learned are applied. At this time, no evaluation of potential alternatives has occurred to determine the cost to implement and their impact on the life cycle of the program.

Mr. SAXTON. To the extent that there have been significant changes from the acquisition baseline cost estimates for disposal of the stockpile, can you please provide us with an update?

Dr. KLEIN. As of April 2004, there were no significant changes from the current acquisition program baseline.

Mr. SAXTON. Based on the information provided by the GAO and the Department of Defense, the cost for destroying the chemical weapons stockpile at Blue Grass, Kentucky appears to be significantly higher for percentage of stockpile destroyed than at the other sites. What are the factors that drive the life cycle costs for disposal of the stockpile? What are the differences at Blue Grass that contribute to the estimated difference in cost for percentage of stockpile destroyed?

Dr. KLEIN. Factors that affect the life cycle cost estimate for disposal of chemical weapons stockpiles include:

agent destruction technology
type of chemical agent to be destroyed (nerve agents and mustard (blister agent))
type of chemical weapons (rockets and projectiles)
quantity of chemical weapons
quantity of chemical agent
the number of staff required
the size of the facility
treatment of secondary waste
metals parts treatment

munitions' bodies deformation
duration of each project phase (design, construction, installation/systemization, operations and closure)
state and local environmental regulations, and
worker/public/environmental safety requirements.

The primary factor at Blue Grass that contributes to the higher cost for percentage of stockpile is the relatively small quantity of chemical agents and munitions types stockpiled at that facility, compared to all other U.S. chemical weapons storage sites. Construction costs, daily operating costs, and costs associated with changing from one type of agent to another, i.e., agent changeover, are approximately the same for each site despite the quantity of chemical agent being destroyed.

Mr. SAXTON. The Chemical Weapons Convention Treaty to which the United States is a party requires demilitarization of the chemical weapons stockpiles and the destruction of known non-stockpile chemical materials to be completed by April 2007.

What are the current implications of the current schedule for the U.S. chemical weapons destruction program to the United State's ability to meet its obligations under the treaty?

Dr. KLEIN. The U.S. has met all of its treaty obligations to date. The U.S. received an extension of the 45 percent Chemical Weapons Convention (CWC) treaty destruction deadline from April 2004 to December 2007. With the realignment of FY05 funding to operating and constructed chemical weapons destruction facilities, we have significantly increased our probability of achieving the revised 45 percent deadline. The CWC allows for an extension of up to five years for the 100 percent destruction deadline of April 2007. In 2003, when the U.S. was granted the revised 45 percent destruction deadline, the U.S. was also wanted in principle an extension until April 2012 to achieve the 100 percent destruction deadline. The U.S. will formally request an extension to the 100 percent destruction deadline in 2006.

Mr. WAKEFIELD. The U.S. has met all of its treaty obligations to date. The U.S. received an extension of the 45 percent Chemical Weapons Convention (CWC) treaty destruction deadline from April 2004 to December 2007. With the realignment of FY 2005 funding to operating and constructed chemical weapons destruction facilities, we have significantly increased our probability of achieving the revised 45 percent deadline. The CWC allows for an extension of up to five years for the 100 percent destruction deadline of April 2007. In 2003, when the U.S. was granted the revised 45 percent destruction deadline, the U.S. was also granted, in principle, an extension until April 2012 to achieve the 100 percent deadline extension. The U.S. will formally request an extension to the 100 percent deadline extension in 2006.

Mr. SAXTON. What measures could or should be taken to accelerate the chemical weapons destruction program or to otherwise ensure compliance with the schedules for the destruction of the stockpile established under the treaty?

Dr. KLEIN. Possible measures to accelerate the Chemical Demilitarization Program may include treatment and disposal of secondary waste at commercial facilities; destroying the bulk containers of chemical agent first followed by all remaining chemical weapons with the same chemical agent-fill; consolidation of chemical weapons; reconfiguration of chemical weapons; and consolidation the U.S. Army Chemical Materials Agency and the Assembled Chemical Weapons Alternatives Program into one organization to eliminate duplicate resources and efforts, and to ensure lessons learned are applied.

Mr. SAXTON. The Fiscal Year 2005 President's Budget Request reduced by $146.7 million the fiscal year 2005 estimate for design and construction Assembled Chemical Weapons Alternatives pilot plant at Pueblo, Colorado, which accompanies the Fiscal Year 2004 President's Budget request and an analysis of alternatives is reportedly underway with regard to the design of the plant.

What was the basis for the reduction? How were the funds redistributed within the FY2005 budget request and what funding is available for the Pueblo program in FY2005?

Mr. WAKEFIELD. The basis for the reduction was to keep existing facilities operating and get constructed facilities operational. This re-alignment was driven by the Department's limited financial resources.

In comparison with the FY05 President's Budget submission and the FY05 budget estimate, the operations and maintenance funding was increased by $98.8 million, the procurement funding was increased by $47.9 million, and the research, development, test and evaluation funding was decreased by $146.7 million. The Pueblo program received $4.9 million in the research, development, test and evaluation funding, and $44.8 million in military construction funding.

Mr. SAXTON. What assumptions and guidance drove the original design for the Pueblo pilot plant? What design or funding constraints were imposed on the contractor?

Mr. WAKEFIELD. The guidance for the original design was issued in the July 2002 Acquisition Decision Memorandum to the Program Manager for Assembled Chemical Weapons Alternatives (PM ACWA) on the Pueblo project that included the approval of neutralization followed by biotreatment as the destruction technology. The Department directed the PM ACWA to accelerate destruction process by expediting source selection, optimizing the environmental permit process, reconfiguring the munitions, and working with the community and the federal, state and local governments. The Department also directed PM ACWA to execute the project to ensure compliance with the Chemical Weapons Convention (CWC) treaty, and identify additional options to further reduce cost and schedule.

Constraints that were imposed on the contractor was to develop a design that implemented neutralization followed by biotreatment, and to develop processes that would destroy chemical weapons and all secondary wastes at Pueblo to meet the CWC 100 percent destruction deadline. For the design phase, the contractor was limited to FY03 and FY04 appropriated funds. However, the contract failed to emphasize the cost management and controls to contain the life cycle increase.

Mr. SAXTON. What are the results of the analysis of alternatives being conducted relative to the design and construction of the Pueblo pilot plant?

Mr. WAKEFIELD. The results of the evaluation of design alternatives concluded that a more manageable and affordable chemical weapons destruction facility could be designed using the same neutralization process as compared to the current Pueblo project design.

Mr. SAXTON. What are the impacts of the reduced funding in FY2005 on the life-cycle cost and schedule for the disposal of the mustard agent and munitions at Pueblo?

Mr. WAKEFIELD. The Program Office estimates an extension of the design phase for the Pueblo project by four to six months at a cost of $1.2 million during which time additional independent assessments will be initiated to determine a safe and cost-effective design alternative. The overall life cycle cost impact for the Pueblo project will be determined, when the path forward decision for the design is rendered.

Mr. SAXTON. What are the impacts of any slip in the Pueblo program on the design and construction of the pilot plant at Blue Grass and implications for the life-cycle cost and schedule for the disposal of the blister and nerve agent-filled munitions at that site?

Mr. WAKEFIELD. The realignment of funding from Pueblo may delay sharing test results, design data for various systems, and vendor data with the Blue Grass project. This would increase the Blue Grass design effort by approximately $1.2 million, but should not affect the design and construction schedules.

Mr. SAXTON. What measures could or should be taken to accelerate the chemical weapons destruction program or to otherwise ensure compliance with the schedules for the destruction of the stockpile established under the treaty?

Mr. WAKEFIELD. Possible measures to accelerate the Chemical Demilitarization Program may include treatment and disposal of secondary waste at commercial facilities; destroying the bulk containers of chemical agent first followed by all remaining chemical weapons with the same chemical agent-fill; consolidation of chemical weapons; reconfiguration of chemical weapons; and consolidation of U.S. Army Chemical Materials Agency and Assembled Chemical Weapons Alternatives Program into one organization to eliminate duplicate resources and efforts, and to ensure lessons learned are applied.

QUESTIONS SUBMITTED BY MR. SMITH

Mr. SMITH. Dr. Klein and Mr. Decker, what necessary and perhaps additional steps could be taken to accelerate the Chem-Demil program to maintain compliance with the Chemical Weapons Convention schedule and protocols?

[The information was unavailable at the time of printing.]

Mr. SMITH. Dr. Klein and Mr. Wakefield, could you help the panel better understand the pro's and con's of the alternative technologies under consideration for use in this program?

[The information was unavailable at the time of printing.]

Mr. SMITH. Dr. Klein and Secretary Bolton, the costs of this program have increased substantially and are projected to continue rising. Could you comment on

the nature of the cost-growth and share with us your views on the challenge facing us in the future?

[The information was unavailable at the time of printing.]

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